State of New Mexico
LEGISLATIVE EDUCATION STUDY COMMITTEE

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November 19, 2008

MEMORANDUM

TO: Legislative Education Study Committee

FR: Kathleen Forrer K.F.

RE: **STAFF REPORT: NEW MEXICO PREK AND K-3 PLUS EXTERNAL PROGRAM EVALUATIONS**

During every interim since 1998, the Legislative Education Study Committee (LESC) has heard testimony about early childhood education (ECE). Understanding the importance of ECE as a means of closing the achievement gap between disadvantaged students and other students, the committee has been instrumental in the passage of key legislation designed to strengthen ECE in New Mexico. In addition to full-day kindergarten, which was phased in over a five-year period beginning with school year 2000-2001, other LESC-endorsed legislation resulting in major ECE initiatives includes the following:

- Enacted in 2005, the *Pre-Kindergarten Act* establishes a voluntary program of pre-kindergarten services for four-year-old children offered by public schools, tribes or pueblos, Head Start centers, and licensed private providers. Known as New Mexico PreK, the program is administered jointly by the Public Education Department (PED) and the Children, Youth and Families Department (CYFD).

- Enacted by the 2007 Legislature, K-3 Plus is a six-year pilot project that extends the school year in kindergarten through third grade by at least 25 instructional days, beginning up to two months earlier than other classes.

The statutes governing these two programs include a requirement that their efficacy be evaluated and the results reported annually to the Legislature and the Governor.

New Mexico PreK

Pre-kindergarten services provided through New Mexico PreK must include a curriculum that addresses the total developmental needs of the child – physical, cognitive, social, and emotional – and that includes aspects of health care, nutrition, safety, the needs of the family, and multicultural and linguistic sensitivity, in coordination with other resources for families.

Citing research linking "the professional training and formal education of teachers to higher quality teacher-child interactions," *New Mexico's PreK Program Standards for 2008-2009* (Program Standards) continues the requirements that:

1. the lead teacher in each New Mexico PreK classroom must hold a valid New Mexico teacher's license in early childhood education (birth through third grade); and

2. educational assistants must have an associate degree in early childhood education, as well as either a valid educational assistant license from PED or the Associate of Early Education Certificate from the Office of Child Development, whichever is most appropriate for their place of employment.

In addition, all program staff must have a current professional development plan with specific professional goals and timelines. Although the above standards must be met at the time any program is approved by PED, CYFD may approve programs in which teachers and educational assistants do not meet these qualifications, so long as they include work toward meeting these requirements in their professional development plan and make continuous progress toward meeting these requirements within five years of employment.

New Mexico PreK External Evaluation:

On June 15, 2005, the Office of Education Accountability (OEA) issued a request for proposals (RFP) for a "comprehensive program evaluation" of New Mexico PreK to be based on an assessment of the following components:

- the growth and progress of individual children measured by developmentally appropriate assessment methods and instruments, including Get It Got It Go!;

- a review and analysis of individual programs using a statewide perspective for findings such as trends, continuity across programs and consistency with research-based practice; and

- the success of the New Mexico PreK initiative in meeting its purposes of:
  - increasing access to voluntary high-quality pre-kindergarten programs;
  - providing developmentally appropriate activities for New Mexico children;
  - expanding early childhood community capacity;
  - supporting linguistically and culturally appropriate curriculum; and
  - focusing on school readiness.

The RFP included an option of renewing the initial contract on an annual basis for up to three additional years.

In fall 2005, the state selected the National Institute for Early Education Research (NIEER) at Rutgers University to conduct an external, statewide evaluation of New Mexico's PreK program. In order to assess all aspects of the program, NIEER partnered with the Early Intervention Research Institute (EIRI) at Utah State University; EIRI was tasked with conducting an economic impact analysis of New Mexico PreK and with overseeing the collection of classroom observation and child outcome data:

- A preliminary NIEER report, *Child and Classroom Findings from the First Year of the New Mexico PreK Initiative*, was presented to the LESC in December 2006 by Dr. Jason T. Hustedt, Assistant Research Professor, NIEER. Explaining that because of the newness of the program, this first report was only a snapshot of how children were performing in the spring of 2006 rather than a comparison between children who had completed the program and those who were just entering the program, Dr. Hustedt reviewed the results from the variety of assessments administered during spring 2006.

- In August 2007, Dr. Hustedt presented the first program evaluation report, *The Effects of the New Mexico PreK Initiative on Young Children's School Readiness*. Comparing the achievement level of children who were just entering pre-kindergarten with the achievement level of children who had just completed the pre-kindergarten program and are just entering kindergarten, the researchers found that overall New Mexico PreK has statistically significant and meaningful impacts on children's early language, literacy, and mathematical development. However, because the report did not disaggregate the results, no comparison between PED-approved and CYFD-approved pre-kindergarten programs was possible.

- The final report of the 2007 interim, *The Economics of Investing in New Mexico's State Funded PreK Program*, was a cost-benefit analysis presented in December by Dr. Linda D. Goetze, Economist, EIRI. Using an estimated cost per child of $2,961 and an estimated gross benefit per child of $14,811, the researchers calculated that $5 would be returned to New Mexico for every dollar that the state spends on New Mexico PreK. However, the researchers also projected that full implementation of the program would result in an increase in the cost of K-12 and postsecondary education because fewer children would be likely to exit the system. When this cost was taken into consideration, the net benefit per child was estimated to be $11,850, with the resulting return on investment approximately $4 for every dollar spent on state-funded pre-kindergarten.

In December 2007, the LESC sent a letter to OEA requesting that the state's contract with NIEER be amended to require that future evaluation reports, whether prepared by NIEER or any of its research partners, include disaggregated data that will allow comparisons of programs approved by PED with those approved by CYFD. In a letter dated March 28, 2008, Dr. Peter Winograd, Director, OEA, responded that NIEER had been informed of the request and that the scope of work would be amended accordingly.

New Mexico PreK Costs:

The *Pre-Kindergarten Act* creates two non-reverting funds: the Public Pre-kindergarten Fund, administered by PED, and the Children, Youth and Families Pre-kindergarten Fund, administered by CYFD. Both funds consist of appropriations to the fund, income from fund

investments, gifts, grants, and donations. Up to 10 percent of the money in each fund may be used for administrative expenses by the respective department.

Since the program's inception, the Legislature has appropriated a total of approximately $46.0 million in General Fund revenue to implement New Mexico PreK, plus an additional $2.0 million in Temporary Assistance for Needy Families (TANF) revenue and $7.0 million in severance tax bond receipts for capital outlay costs associated with pre-kindergarten classrooms:

- For FY 06, the Legislature appropriated a total of $4.95 million in General Fund revenue: $4.0 million to PED, which was equally divided between PED and CYFD, for a pre-kindergarten pilot program; and $950,000 to the Department of Finance and Administration (DFA) for pre-kindergarten services.

- For FY 07, the Legislature appropriated a total of almost $9.5 million in General Fund revenue: $4.0 million each to PED and CYFD ($3,995,800 after "sanding") for the pre-kindergarten program and an additional $1.5 million to PED for "one-time pre-kindergarten start-up costs for developmentally appropriate equipment and classroom safety improvements." In addition, the 2006 Legislature also appropriated $4.0 million in severance tax bond receipts "to plan, design, construct, equip and furnish pre-kindergarten classrooms statewide."

- For FY 08, the Legislature appropriated a total of $14.0 million in General Fund revenue for pre-kindergarten: $5.0 million each to PED and CYFD in the *General Appropriation Act of 2007* and an additional $2.0 million each to PED and CYFD in "HB 2 Junior." Although there was no separate appropriation for start-up costs, as there had been the previous year, PED and CYFD set aside $500,000 each to provide start-up grants.

- For FY 09, the 2008 Legislature appropriated a total of $17.6 million in General Fund revenue for the prekindergarten: $8.5 million each to PED and CYFD for the pre-kindergarten program, $400,000 to PED for pre-kindergarten start-up costs, and $200,000 to OEA "to evaluate the kindergarten-three-plus and pre-kindergarten programs." In addition, the Legislature appropriated $1.0 million each in TANF funds to PED and CYFD for the pre-kindergarten program and $3.0 million in severance tax bond receipts to PED "to construct pre-kindergarten classrooms statewide."

Pre-kindergarten service providers receive reimbursement on a per-child basis. As allowed by the act, PED and CYFD have specified that the funds must be used to supplement—not supplant—pre-kindergarten services existing at the time that the contract to provide New Mexico PreK services becomes effective. The reimbursement rates for the first four years of the program are:

- FY 06 – $2,278.81 for each child receiving 540 hours of developmentally appropriate activities.

- FY 07 – $2,649.93 ($2,479.93 per child per 540 hours of service plus an additional $170 per child for instructional materials).

- FY 08 – $2,714.95 ($2,624.95 per child per 540 hours of service plus an additional $90 per child for instructional materials).

- FY 09 – $2,901 ($2,803 per child per 540 hours of service plus an additional $98 per child for instructional materials).

For FY 09, PED and CYFD have approved 148 programs serving a total of 4,567 children statewide (see Attachment 1 for program-specific information):

- PED has approved 61 programs serving 2,231 children in 27 school districts. Contract amounts total almost $7.6 million, including approximately $6.5 million for program costs, $219,652 for start-up costs, and $876,899 for transportation.

- CYFD has approved 87 programs serving 2,336 children. These programs are provided by 46 contractors. Contract amounts total nearly $7.3 million, including approximately $6.8 million for program costs, $235,321 for start-up costs, and $287,616 for transportation.

K-3 Plus

Patterned after Kindergarten Plus, the K-3 Plus pilot project is designed to demonstrate that increased time in kindergarten and the early grades narrows the achievement gap between disadvantaged students and other students, increases cognitive skills, and leads to higher test scores for all participants. Thus, the program, which is administered by PED, will measure the effect of the additional time on literacy, numeracy, and social skills development of the participants.

Among its other provisions, the statute creating K-3 Plus [Section 22-13-28 NMSA 1978]:

- requires PED, in evaluating applications for K-3 Plus programs, to grant priority to those schools with Kindergarten Plus programs that have received one or more satisfactory annual evaluations;

- specifies that K-3 Plus must be conducted in high-poverty public schools – that is, schools in which at least 85 percent of the students are eligible for free or reduced-fee lunch at the time of application;

- requires PED to determine application requirements and procedures, as well as evaluation criteria;

- requires PED to provide additional professional development for K-3 Plus teachers in how young children learn to read;

- specifies that teachers and educational assistants must be paid at the same rate and under the same terms as teachers and educational assistants in regular educational programs;

- requires that students be evaluated at the beginning of the program and that their progress be measured (1) in literacy, using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in kindergarten through grade 3; and (2) in numeracy in grades 3 and 4; and

- allows PED to use up to 4.0 percent of any legislative appropriation for K-3 Plus for professional development for participating educators and department administrative costs.

K-3 Plus External Evaluation:

On April 28, 2008, the Office of Education Accountability (OEA) issued an amended request for proposals (RFP) "for a comprehensive evaluation" of K-3 Plus that would address "implementation status, stakeholder perceptions, program quality and the impact [of the program] on student achievement." The RFP includes the following summary scope of work:

1. Review, identify and evaluate all statutory requirements for program implementation and progress reporting of the Kindergarten-Three-Plus (K-3 Plus) Pilot Project that must include, but are not limited to: community demographics; cultural and historic background; language and linguistic challenges; school improvement status (designations); reference to how this extended year instructional model will affect the school's Educational Plan for Student Success (EPSS) plan, availability of preschool, Pre-K, Even Start or other early intervention programs; AYP status (listed by sub-group); parental involvement plan and current funding levels; and

2. Develop tools, methods and timelines for collecting data on requirements as identified and defined in statute that must include, but are not limited to: how the K-3 Plus pilot project will align with the district and the school EPSS goals; K-3 Plus program standards; assessment procedures and assessment and reporting dates for the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and other appropriate measures to assess progress in numeracy; a description of the scientific research based early literacy/reading curriculum being implemented and any additional enhancements used with the scientific research based early literacy/reading program; a plan for involving families and what resources have been employed to collect and report baseline data.

On June 13, 2008, the state awarded the contract to EIRI at Utah State University.

The RFP included an option of renewing the initial contract on an annual basis for up to three additional years.

K-3 Plus Costs:

The Legislature has appropriated a total of almost $14.7 million in General Fund revenue to fund the K-3 Plus pilot program:

- The 2007 Legislature appropriated approximately $7.2 million for K-3 Plus for expenditure in FY 08 and included an additional $336,000 in the transportation distribution to help defray the costs of transporting students enrolled in approved Kindergarten Plus programs[1]. For school year 2007-2008, PED approved 62 proposals

[1] The $7.1 million was contingent upon passage of the legislation creating the K-3 Plus pilot program; however, the funds for Kindergarten Plus transportation could be used for either program, depending upon the fate of the K-3 Plus legislation, which, ultimately, was signed into law.

but only funded 54 programs of them, explaining that the eight programs not funded "were unable to retain teachers ... or found that they lacked sufficient time to plan." The 54 programs that were funded served a total of 5,069 students in 17 school districts.

- The 2008 Legislature appropriated approximately $7.2 million for K-3 Plus for expenditure in FY 09 but did not provide additional transportation funds. However, the Legislature did appropriate $3.0 million in TANF funds, which were vetoed. For school year 2008-2009, PED has approved 92 programs serving 6,996 students in 25 school districts.

According to PED, because schools participating in the K-3 Plus pilot program are required to add a minimum of 25 instructional days "beginning up to two months earlier than other classes," K-3 Plus programs may start prior to July 1, which is the beginning of the fiscal year. However, the funds appropriated by the Legislature to pay for these programs are not available for use until July 1. As a consequence, not all of the FY 08 appropriation could be expended for programs provided prior to the start of school year 2007-2008. Therefore, PED allowed school districts to encumber the remaining funds for programs offered in conjunction with school year 2008-2009. (See Attachment 2 for FY 09 programs and funding.)

PED indicates that it has used the 4.0 percent retained by the department from both the FY 08 and FY 09 appropriations to cover the costs of an administrative assistant position and three professional development conferences.

K-3 Plus Background:

K-3 Plus is modeled after Kindergarten Plus, a program implemented in 2003 in four school districts for a three-year period and then extended in 2006 for a six-year period to other school districts with high-poverty schools. During school year 2006-2007, three new school districts offered Kindergarten Plus; and the four original districts expanded their programs so that, altogether, 29 Kindergarten Plus classes in seven school districts were serving approximately 962 students.

During the 2006 interim, PED testified to the LESC that its evaluation of year three of the program – like the evaluations of years one and two conducted by the OEA – found overall positive results in the assessment data, with students demonstrating significant growth in all four areas measured by DIBELS: letter-naming fluency, initial sound fluency, phoneme segmentation fluency, and nonsense word fluency. Furthermore, the PED evaluation found that, in every school, more Kindergarten Plus students reached benchmarks than their counterparts who did not participate in Kindergarten Plus and that teachers and administrators continue to view the program as an effective way to ensure that students are prepared for kindergarten and first grade. Among the recommendations derived from its evaluation, PED called for continued expansion of the program, which K-3 Plus provides.

The concept for K-Plus originated with the late Sandra Feldman, former president of the American Federation of Teachers (AFT), in a speech delivered to the AFT convention in July 2002. Although New Mexico seems to be the only jurisdiction to have implemented either a K-Plus or K-3 Plus program, there has been considerable interest throughout the country recently

in expanding the time that students spend in school, especially in kindergarten (or pre-kindergarten) through grade 3.

Policy Options:

Currently, PED issues a student identification number to all New Mexico PreK students, whether the students are enrolled in a PED-approved or a CYFD-approved program. However, the New Mexico PreK data are kept at the University of New Mexico and are not included in the Student Teacher Accountability Reporting System (STARS). In order to expedite future analyses, the committee may wish to require that the relevant data associated with all New Mexico PreK programs be moved into STARS so that the data are more readily accessible and that the possibility of a single student being issued multiple identification numbers by PED is minimized.

Presenters:

Dr. Hustedt will present the second program evaluation report on the efficacy of New Mexico PreK: I*mpacts of New Mexico PreK on Children's School Readiness at Kindergarten Entry: Results from the Second Year of a Growing Initiative* (June 2008).

Dr. Goetze will provide a status report on the evaluation of the K-3 Plus program currently being conducted by EIRI.

FY 09 NEW MEXICO PreK PROGRAMS

District/Contractor	Site(s)	Number of Childtren Funded	Program Services $2,901 per Child	Start Up & Safety Amount Funded	Transportation Amount Funded	Total Amount All Funding
PED-APPROVED SITES						
Albuquerque Public Schools	Armijo ES	36				
	Barcelona ES	36				
	Edward Gonzales ES	108				
	Eugene Field ES	36				
	Hawthrone ES	12				
	Lavaland ES	36				
	Los Padillas ES	18				
	Pajarito ES	40				
	Valle Vista ES	72				
District Total	9 Sites	394	$1,142,994	$66,652	$0	$1,209,646
Bernalillo Public Schools	Algodones ES	20				
	Cochiti ES	20				
	Roosevelt ES	100				
District Total	3 Sites	140	$406,140	$30,000	$80,000	$516,140
Central Consolidated Schools	Kirtland Early Childhood Center	34				
	Naschitti ES	12				
	Natanni Nez ES	34				
	Newcomb ES	34				
	Nizhoni ES	68				
	Ojo Amarillo ES	34				
	Ruth N. Bond ES	34				
District Total	7 Sites	250	$725,250	$0	$144,149	$869,399
Chama Valley Independent Schools	Chama ES	14	$40,614	$0	$7,000	$47,614
Cobre Consolidated Schools	Central ES	60	$174,060	$30,000	$64,000	$268,060
Cuba Independent Schools	Cuba ES	16	$46,416	$0	$0	$46,416
Gadsden Independent Schools	On Track PreK Central – Anthony	70				
	On Track PreK East – Chaparral	80				
	On Track PreK North – La Mesa	70				
	On Track PreK South – Sunland Park	160				
District Total	4 Sites	380	$1,102,380	$0	$230,000	$1,332,380
Gallup-McKinley County Schools	Chee Dodge ES	32				
	Church Rock ES	16				
	Juan de Onate ES	32				
	Navajo ES	32				
	Rocky View ES	32				
	Tohatchi ES	16				
	Washington ES	16				
District Total	7 Sites	176	$510,576	$0	$104,000	$614,576
Grants-Cibola County Schools	Mesa View ES	20				
	Milan Es	20				
	Mount Taylor ES	20				
District Total	3 Sites	60	$174,060	$0	$0	$174,060
Jemez Valley Public Schools	Jemez Valley ES	18	$52,218	$0	$10,000	$62,218
Logan Municipal Schools	Logan ES	16	$46,416	$0	$0	$46,416

ATTACHMENT 1

FY 09 NEW MEXICO PreK PROGRAMS

District/Contractor	Site(s)	Number of Children Funded	Program Services $2,901 per Child	Start Up & Safety Amount Funded	Transportation Amount Funded	Total Amount All Funding
Los Lunas Public Schools	Tome ES	20	$58,020	$0	$44,478	$102,498
Magdalena Municipal Schools	Magdalena ES	20	$58,020	$0	$23,084	$81,104
Mesa Vista Consolidated Schools	El Rito ES	20	$58,020	$0	$33,320	$91,340
N. Valley Academy Charter School	North Valley Academy Charter	40	$116,040	$10,000	$0	$126,040
Pecos Independent Schools	Pecos ES	25	$72,525	$0	$5,840	$78,365
Questa Independent Schools	Red River Charter	10	$29,010	$10,000	$0	$39,010
Regional Educational Cooperative #7	Eunice – Mettie Jordan ES	10				
	Hobbs – Booker T. Washington ES	20				
	Jal – Jal ES	13				
	Tatum – Tatum ES	80				
REC Total	4 Sites	123	$356,823	$0	$0	$356,823
Rio Rancho Public Schools	Shining Stars Preschool	126	$365,526	$20,000	$87,108	$472,634
Roswell Independent Schools	Parkview Early Learning Center	72	$208,872	$0	$0	$208,872
San Jon Municipal Schools	San Jon ES	16	$46,416	$10,000	$0	$56,416
Santa Fe Public Schools	El Dorado	30				
	Turquoise Trail Charter	30				
District Total	2 Sites	60	$174,060	$13,000	$10,000	$197,060
Socorro Consolidated Schools	Parkview Elementary School	30				
	San Antonio ES	10				
District Total	2 Sites	40	$116,040	$0	$0	$116,040
Truth or Conseq. Municipal Schools	Arrey ES	20				
	T or C ES	20				
District Total	2 Sites	40	$116,040	$0	$33,920	$149,960
Tucumcari Public Schools	Tucumcari ES	20	$58,020	$10,000	$0	$68,020
West Las Vegas Public Schools	WLV PreK/Don Cecilio Martinez ES	40				
	Valley ES	20				
District Total	2 Sites	60	$174,060	$20,000	$0	$194,060
Zuni Public Schools	A:shiwi ES	15	$43,515	$0	$0	$43,515
DISTRICTS/REC 7: 27	61 Sites	2,231	$6,472,131	$219,652	$876,899	$7,568,682
CYFD-APPROVED SITES						
Albuquerque, City of	Barelas	20				
	Emerson	20				
	Hawthorne	20				
	Alamosa	20				
	Los Volcanos	20				
	Gov. Bent	60				
	Duranes	20				
	Carlos Rey	20				
	La Luz	40				
	Manzano Mesa	20				
Contractor Total	10 Sites	260	$754,260	$20,000	$0	$774,260
Albuquerque Preschool Coop	Albuquerque Preschool Coop	24	$69,624	$5,500	$0	$75,124
Anansi Day School (Arroyo Seco)	Anansi Day School	12	$34,812	$0	$0	$34,812
Apple Tree Education Center (T or C)	Apple Tree Education Center	30	$87,030	$0	$0	$87,030
Cariños Child Development (Questa)	Cariños Child Development	10	$29,010	$0	$0	$29,010

FY 09 NEW MEXICO PreK PROGRAMS

District/Contractor	Site(s)	Number of Childtren Funded	Program Services $2,901 per Child	Start Up & Safety Amount Funded	Transportation Amount Funded	Total Amount All Funding
Children's Garden, The (Las Cruces)	The Children's Garden 2	40				
	The Children's Garden 3	40				
	The Children's Garden 4	20				
	The Children's Garden 5	40				
Contractor Total	4 Sites	140	$406,140	$0	$0	$406,140
Children's World (Alamogordo)	Children's World	20	$58,020	$10,000	$0	$68,020
CHINS Full House (Alamogordo)	CHINS Full House	50	$145,050	$0	$8,456	$153,506
Coronado Children's Center (Albuquerque)	Coronado Children's Center	20	$58,020	$10,000	$0	$68,020
Creative Kids Child Care (Española)	Creative Kids Child Care	20	$58,020	$10,000	$0	$68,020
Discovery Child Development (Las Cruces)	Discovery I	20				
	Discovery II	20				
	Discovery III	10				
Contractor Total	3 Sites	50	$145,050	$0	$0	$145,050
Eastern Plains CCA (Santa Rosa)	Santa Rosa PreK	20	$58,020	$0	$0	$58,020
El Centro De Los Ninos (Tierra Amarilla)	El Centro De Los Ninos	8	$23,208	$0	$0	$23,208
Family Learning Center (Española)	Family Learning Center	20	$58,020	$0	$0	$58,020
Generations of Learning (Roswell)	Generations of Learning	80	$232,080	$15,000	$0	$247,080
Gold Star Academy, A (Farmington)	A Gold Star Academy	40	$116,040	$3,891	$0	$119,931
HELP-NM	HELP-NM, Tularosa	20				
	HELP-NM, Columbus	14				
	HELP-NM, Deming CDC	36				
	HELP-NM, Deming Rainbow CDC	37				
	HELP-NM, Chaparral-Sunrise Elementary	40				
	HELP-NM, Chaparral	17				
	HELP-NM, Alamogordo	40				
	HELP-NM, La Luz	20				
Contractor Total	8 Sites	224	$649,824	$0	$0	$649,824
Ruidoso River Raccoons	Ruidoso River Raccoons	10	$29,010	$0	$0	$29,010
Jardin De Los Ninos (Las Cruces)	Jardin De Los Ninos	16	$46,416	$0	$0	$46,416
Karrousal Preschool (Alamogordo)	Karrousal Preschool	60	$174,060	$0	$0	$174,060
Kids Korner (Los Lunas)	Kids Korner	17	$49,317	$10,000	$0	$59,317
La Petite Academy	La Petite Academy, Fortuna	20				
	La Petite Academy, Constitution	20				
	La Petite Academy, Bernalillo	20				
	La Petite Academy, Rio Rancho	20				
Contractor Total	4 Sites	80	$232,080	$30,000	$0	$262,080
Las Cumbres Learning Services (Española)	Las Cumbres Learning Services	10	$29,010	$0	$8,207	$37,217
Little Blessings (Los Lunas)	Little Blessings	20	$58,020	$10,000	$0	$68,020
Little Bug, Inc. (Taos)	Little Bug, Inc.	20	$58,020	$10,000	$0	$68,020
Little Learners Child Dev. (Los Lunas)	Little Learners Child Dev.	60	$174,060	$0	$19,708	$193,768
Mescalero Apache School	Mescalero Apache School	32	$92,832	$0	$0	$92,832
Mid West CAP	Mid West Cap, Gallup	20				
	Mid West Cap, Grants	50				
	Mid West CAP, Socorro	20				
	Mid West CAP, Adelino	20				
Contractor Total	4 Sites	110	$319,110	$0	$61,089	$380,199

FY 09 NEW MEXICO PreK PROGRAMS

District/Contractor	Site(s)	Number of Childtren Funded	Program Services $2,901 per Child	Start Up & Safety Amount Funded	Transportation Amount Funded	Total Amount All Funding
Martineztown Neighborly Service (Albuquerque)	Martineztown Neighborly Service	20	$58,020	$10,000	$0	$68,020
NM Highlands University (Las Vegas)	NM Highlands University	16	$46,416	$0	$0	$46,416
NM State Univ. – Dove Center (Las Cruces)	Roadrunner Preschool	40	$116,040	$10,000	$0	$126,040
Noah's Ark Foothills Center (Albuquerque)	Noah's Ark Foothills Center	50	$145,050	$10,000	$0	$155,050
Presbyterian Medical Services	PMS Nambe	20				
	PMS Farmington	34				
Contractor Total	2 Sites	54	$156,654	$0	$0	$156,654
Rocking Horse Daycare (Carrizozo)	Rocking Horse Daycare	20	$58,020	$10,000	$15,144	$83,164
San Felipe De Neri (Albuquerque)	San Felipe De Neri	20	$58,020	$4,000	$0	$62,020
Southwest Child Care (Albuquerque)	Southwest Child Care, Lomas	20				
	Southwest Child Care, Wyoming	20				
	Southwest Child Care, Texas	20				
Contractor Total	3 Sites	60	$174,060	$0	$0	$174,060
St. Mark's In The Valley (Albuquerque)	St. Marks in the Valley	20				
	St. Marks/A Child's Garden	10				
Contractor Total	2 Sites	30	$87,030	$0	$0	$87,030
Son Shine Learning Center (Albuquerque)	Son Shine Learning Center	10				
	Learn & Play Child Develop. Center	10				
Contractor Total	2 Sites	20	$58,020	$16,930	$0	$74,950
Five Systems/Trio Schools (Española)	Five Systems/Trio Schools	30	$87,030	$0	$0	$87,030
United Way of Santa Fe	United Way of Santa Fe, Agua Fria	48				
	United Way of Santa Fe, Kaune	32				
Contractor Total	2 Sites	80	$232,080	$10,000	$0	$242,080
UNM Children's Campus (Albuquerque)	UNM Children's Campus	92	$266,892	$0	$0	$266,892
UNM-Taos	UNM-Taos	20	$58,020	$10,000	$0	$68,020
UNM Valencia Child Care (Los Lunas)	UNM Valencia Child Care	40	$116,040	$0	$0	$116,040
Watch Me Grow (Belen)	Watch Me Grow	40	$116,040	$0	$0	$116,040
Wright Choice, The (Belen)	The Wright Choice	30	$87,030	$0	$18,745	$105,775
Youth Development, Inc.	YDI-Espanola	15				
	YDI-Kirtland Elementary	20				
	YDI-Mary Ann Binford Elementary	20				
	YDI-Reginald Chavez Elementary	20				
	YDI-Ranchos de Taos	16				
	YDI-South Valley	20				
	YDI Pedro Baca	20				
	YDI-La Promesa	60				
	YDI-Hernandez	20				
Contractor Total	9 Sites	211	$612,111	$20,000	$156,267	$788,378
CONTRACTORS: 46	87 Sites	2,336	$6,776,736	$235,321	$287,616	$7,299,673
GRAND TOTAL PED AND CYFD	148 Sites	4,567	$13,248,867	$454,973	$1,164,515	$14,868,355

K-3 PLUS RESPONDENTS TO 2008-2009 REQUEST FOR APPLICATION
AS OF NOVEMBER 2008

District	School	Number of Students Registered	Budget Recommendation	Remaining FY 08 Funding	FY 09 BAR Amount	Total Approved as of 11/2008
Albuquerque Public Schools	Adobe Acres Elementary	203	$220,388	$24,720	$195,668	$220,388
	Alamosa Elementary	137	$132,534	$12,330	$120,204	$132,534
	Armijo Elementary	68	$117,002	$11,500	$105,502	$117,002
	Atrisco Elementary (rec'd 10/27/09)	50				$0
	Barcelona Elementary	134	$172,488	$15,200	$157,288	$172,488
	Dolores Gonzales Elementary	78	$83,761	$16,935	$66,826	$83,761
	Duranes Elementary	116	$122,742	$10,500	$112,242	$122,742
	East San Jose Elementary	78	$112,399	$10,500	$101,899	$112,399
	Edward Gonzales	201	$172,773	$10,700	$162,073	$172,773
	Emerson Elementary	126	$148,660	$12,000	$136,660	$148,660
	Eubank Elementary	118	$113,577	$9,800	$103,777	$113,577
	Eugene Field Elementary	89	$106,300	$9,900	$96,400	$106,300
	Hawthorne Elementary	65	$72,653	$10,366	$62,287	$72,653
	Kirtland Elementary	111	$85,356	$9,000	$76,356	$85,356
	Kit Carson Elementary	60	$81,180	$9,000	$72,180	$81,180
	La Luz Elementary	71	$95,156	$19,000	$76,156	$95,156
	La Mesa Elementary	133	$114,977	$11,000	$103,977	$114,977
	La Promesa Charter School	56	$53,641		$53,641	$53,641
	Lavaland Elementary	82	$149,260	$18,326	$130,934	$149,260
	Los Padillas Elementary	97	$94,733	$9,200	$85,533	$94,733
	Lowell Elementary	11	$65,850	$13,400	$52,450	$65,850
	Mountain View Elementary	126	$127,600	$11,700	$115,900	$127,600
	Reginald Chavez	112	$125,653	$17,700	$107,953	$125,653
	Valle Vista Elementary	123	$188,626	$15,000	$173,626	$188,626
	Wherry Elementary	69	$96,733	$10,800	$85,933	$96,733
	Whittier Elementary	60	$64,927	$8,700	$56,227	$64,927
	Administrative Costs/District Level		$393,582	$355,000	$243,582	$598,582
District Total	26 Schools	2,574	$2,918,969	$307,277	$2,611,692	$2,918,969
Bernalillo Public Schools	Algodones Elementary	65	$90,722	$67,184	$23,538	$90,722
	Santo Domingo Elementary	101	$187,227	$123,948	$63,279	$187,227
District Total	2 Schools	166	$277,949	$191,132	$86,817	$277,949
Carrizozo Municipal Schools	Carrizozo Elementary	44	$134,638	$76,815	$57,823	$134,638
Central Consolidated Schools	Naschitti Elementary	59	$151,401	$28,600	$122,801	$151,401
	Nataani Nez Elementary	68	$151,401	$28,600	$122,801	$151,401
	Newcomb Elementary	104	$151,401	$28,600	$122,801	$151,401
	Nizhoni Elementary	104	$151,401	$28,600	$122,801	$151,401
	District Award		$292,000	$26,000	$266,000	$292,000
District Total	4 Schools	335	$897,604	$140,400	$757,204	$897,604
Deming Public Schools	Ruben S. Torres (Smith/Martin)	51	$178,444	$48,250	$130,194	$178,444
	Bataan Elementary	49	$101,746	$101,746		$101,746
District Total	2 Schools	100	$280,190	$149,996	$130,194	$280,190

ATTACHMENT 2

K-3 PLUS RESPONDENTS TO 2008-2009 REQUEST FOR APPLICATION
AS OF NOVEMBER 2008

District	School	Number of Students Registered	Budget Recommendation	Remaining FY 08 Funding	FY 09 BAR Amount	Total Approved as of 11/2008
Dulce Public Schools	Dulce Elementary	85	$84,030	$53,076	$30,954	$84,030
Española Public Schools	Eutimio "Tim" Salazar Elementary	55	$49,749	$26,375	$23,374	$49,749
	Hernandez Elementary	64	$57,025	$31,636	$25,389	$57,025
District Total	2 Schools	119	$106,774	$58,011	$48,763	$106,774
Gadsden Independent Schools	Berino Elementary	49	$95,836	$84,551	$11,285	$95,836
	Chaparral Elementary	37	$69,923	$39,041	$30,882	$69,923
	Desert Trail Elementary	27	$71,590	$41,991	$29,599	$71,590
	Desert View Elementary	75	$83,010	$61,676	$21,334	$83,010
	Mesquite Elementary	72	$66,562	$51,400	$15,162	$66,562
	Riverside Elementary	57	$79,969	$56,041	$23,928	$79,969
	Sunland Park Elementary	42	$52,634	$33,291	$19,343	$52,634
	Vado Elementary	103	$91,663	$71,147	$20,516	$91,663
District Total	8 Schools	462	$611,187	$439,138	$172,049	$611,187
Gallup-McKinley County Public Schools	Chee Dodge Elementary	36	$60,935	$20,960	$39,975	$60,935
	Church Rock Elementary	35	$57,889	$31,460	$26,939	$58,399
	David Skeet Elementary	39	$62,972	$21,260	$41,712	$62,972
	Juan De Oñate Elementary	41	$64,245	$27,060	$37,185	$64,245
	Navajo Elementary	37	$77,975	$16,260	$61,175	$77,435
	Ramah Elementary	32	$56,250	$25,550	$30,700	$56,250
	Rocky View Elementary	39	$70,460	$17,460	$53,000	$70,460
	Stagecoach Elementary	45	$53,275	$15,660	$37,615	$53,275
	Thoreau Elementary	35	$42,190	$16,060	$26,130	$42,190
	Tohatchi Elementary	42	$58,435	$22,460	$35,975	$58,435
	Twin Lakes Elementary	26	$89,310	$33,660	$55,650	$89,310
District Total	11 Schools	407	$693,936	$247,850	$446,056	$693,906
Hobbs Municipal Schools	Jefferson Elementary School	24	$47,625	$33,654	$13,971	$47,625
	Southern Heights Elementary	67	$66,646	$24,713	$41,933	$66,646
District Total	2 Schools	91	$114,271	$58,367	$55,904	$114,271
Jemez Mountain Public Schools	Lybrook Elementary School	42	$102,083	$102,083		$102,083
Jemez Valley Public Schools	San Diego Riverside Charter School	30	$55,241		$55,241	$55,241
Las Cruces Public Schools	Booker T. Washington Elementary	133	$127,322	$29,153	$98,097	$127,250
	Cesar Chavez Elementary	139	$111,459	$50,945	$60,514	$111,459
	Conlee Elementary	127	$135,067	$60,967	$74,100	$135,067
	Mac Arthur Elementary	142	$120,380	$27,350	$93,030	$120,380
	Mesilla Park Elementary	106	$193,930	$79,528	$114,402	$193,930
	Sunrise Elementary	73	$86,531	$42,045	$44,486	$86,531
	Valley View Elementary	158	$161,315	$26,913	$134,402	$161,315
District Total	7 Schools	878	$936,004	$316,901	$619,031	$935,932
Los Lunas Public Schools	Ann Parish Elementary	167	$201,700	$170,000	$31,700	$201,700
	Desert View Elementary	136	$142,950	$100,000	$42,950	$142,950
District Total	2 Schools	303	$344,650	$270,000	$74,650	$344,650

K-3 PLUS RESPONDENTS TO 2008-2009 REQUEST FOR APPLICATION
AS OF NOVEMBER 2008

District	School	Number of Students Registered	Budget Recommendation	Remaining FY 08 Funding	FY 09 BAR Amount	Total Approved as of 11/2008
Loving Municipal Schools	Loving Elementary	93	$170,105	$170,078		$170,078
Magdalena Municipal Schools	Magdalena Elementary	42	$90,760	$43,637	$47,123	$90,760
Peñasco Independent Schools	Peñasco Elementary	35	$107,025	$57,800	$49,225	$107,025
Santa Fe Public Schools	Agua Fria	28	$81,839	$36,839	$45,000	$81,839
	Larragoite Elementary School	38	$95,332	$45,008	$50,314	$95,322
	Ramirez Thomas Elementary	35	$89,177	$42,486	$46,691	$89,177
	R.M. Sweeney School	113	$168,617	$37,299	$131,318	$168,617
	Salazar Elementary School	33	$71,151	$16,000	$55,151	$71,151
District Total	5 Schools	247	$506,116	$177,632	$328,474	$506,106
Questa Independent Schools	Alta Vista Elementary	30	$80,188	$53,566	$26,622	$80,188
	Rio Costilla Elementary	10	$29,882	$20,971	$8,911	$29,882
District Total	2 Schools	40	$110,070	$74,537	$35,533	$110,070
Roswell Independent Schools	East Grand Plains Elementary	80	$124,030	$44,357	$79,673	$124,030
	Pecos Elementary	129	$168,982	$45,503	$123,479	$168,982
	Sunset Elementary	80	$84,301	$37,576	$46,725	$84,301
District Total	3 Schools	289	$377,313	$127,436	$249,877	$377,313
Silver Consolidated Schools	Sixth Street Elementary	49	$84,169	$22,200	$61,969	$84,169
Socorro Consolidated Schools	Parkview Elementary	71	$113,412	$32,750	$80,662	$113,412
Taos Municipal School District	Arroyo Del Norte Elementary	59	$127,485	$33,000	$94,485	$127,485
	Enos Garcia Elementary	183	$347,413	$49,350	$298,063	$347,413
	Ranchos De Taos Elementary	112	$187,891	$37,300	$150,591	$187,891
District Total	3 Schools	354	$662,789	$119,650	$543,139	$662,789
Truth or Consequences	Arrey Elementary	51	$70,567	$57,233	$13,334	$70,567
West Las Vegas Public Schools	Don Cecilio Elementary/Valley	39	$67,439	$24,300	$47,139	$71,439
	Luis Armijo Elementary/Valley	50	$69,839	$24,700	$49,339	$74,039
	Valley Elementary (under construction)	Included above.	$63,739	$16,600	$51,139	$67,739
District Total	3 Schools	89	$201,017	$65,600	$147,617	$213,217
TOTAL: 25 Districts	92 Schools	6,996	$10,444,451	$3,714,599	$6,946,913	$10,661,512

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The New Mexico PreK Initiative: Impacts on Children's School Readiness and Recent Classroom Quality Results

Jason T. Hustedt and W. Steven Barnett
National Institute for Early Education Research
Rutgers University

Presentation to the Legislative Education Study Committee
November 20, 2008

SOURCE: Dr. Jason T. Hustedt, Assistant Research Professor, and Dr. W. Steven Barnett, Director, National Institute for Early Education Research, Rutgers University

Summary of Main Topics

- Context and research questions for New Mexico PreK study
- Child impacts: language, math, literacy
- Classroom quality
- Interpretation, and plans for current school year

New Mexico PreK in Context

- 38 U.S. states have state-funded PreK
- State PreK expanding nationwide, and several states have committed to voluntary PreK for all 4-year-olds
- Need to better understand how effective programs are in improving kindergarten readiness

Context for Current Study

- NM is 1 of 8 states where NIEER has evaluated state PreK
- NM study began during first year of the PreK initiative
- Previous results described impacts of PreK during its first year
- PreK initiatives develop over time; we continue to look at effects

Research Questions

- Compared to children who did not attend, do New Mexico PreK participants benefit in:
  - * Language development?
  - * Math skills?
  - * Literacy skills?
- What is classroom quality like during year three of New Mexico PreK?

Sample Size, Fall 2007

- 519 4-year-olds from 131 PED and CYFD New Mexico PreK classrooms across the state ("No PreK group")
- 405 5-year-olds from 214 kindergarten classrooms across New Mexico ("PreK group")

Describing the Sample

- Children's ethnicities:
  - 57% Latino
  - 20% Native American
  - 19% White
  - 3% Other ethnicities
- Children's home languages:
  - 70% spoke English only
  - 14% spoke Spanish only

Child Assessment Measures

- Vocabulary knowledge: Peabody Picture Vocabulary Test (PPVT-III)
- Math skills: Woodcock-Johnson Tests of Achievement (WJ-III)
- Print awareness: Test of Preschool Early Literacy (TOPEL)
- Spanish-language versions, as appropriate

Estimating the Impact of PreK

- Start with two groups of New Mexico PreK children
- One group of children already attended PreK and the other group now attending
- Child assessments early in school year
- Comparisons rely on statewide cut-off date for kindergarten enrollment (Sept. 1)
- Children's ages distributed around the cut-off date and differences between groups are calculated

Preschool

Birthday: 9/1/04

Kindergarten

Birthday: 8/31/04

Impacts on School Readiness

- Vocabulary knowledge: scores increased about 6 points
- Math skills: scores increased more than 2 points
- Print awareness: scores increased about 14 percentage points
- All increases statistically significant for entire sample

Child Impacts for PED and CYFD

Measure	PED	CYFD	Overall sample
Vocabulary	7.63*	3.20	5.55*
Math	1.11	2.66+	2.26*
Early Literacy	12.41+	11.46+	13.66**

+ $p < .10$. * $p < .05$. ** $p < .01$.

Classroom Quality Measures

- Overall classroom quality: Early Childhood Environment Rating Scale-Revised (ECERS-R)
- Early language and literacy support: Support for Early Literacy Assessment (SELA)
- Math support: Preschool Classroom Mathematics Inventory (PCMI)

Classroom Quality Findings

- Mean ECERS-R score = 4.26 of a possible 7; a score of 5 indicates good quality
- Mean SELA score = 2.99 of a possible 5; a score of 3 indicates fair/mediocre quality
- Mean PCMI score = 1.90 of a possible 5, an indication of limited quality

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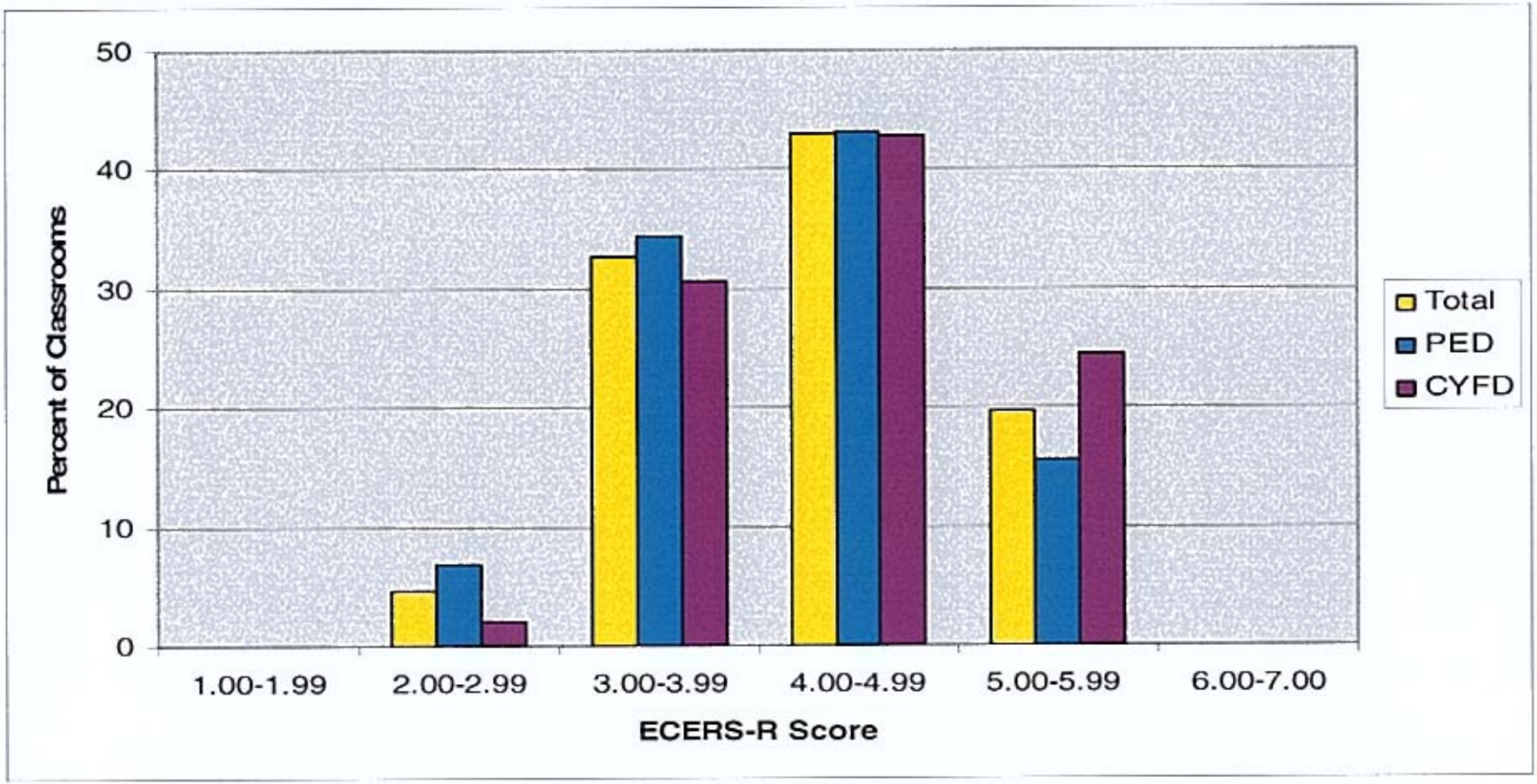
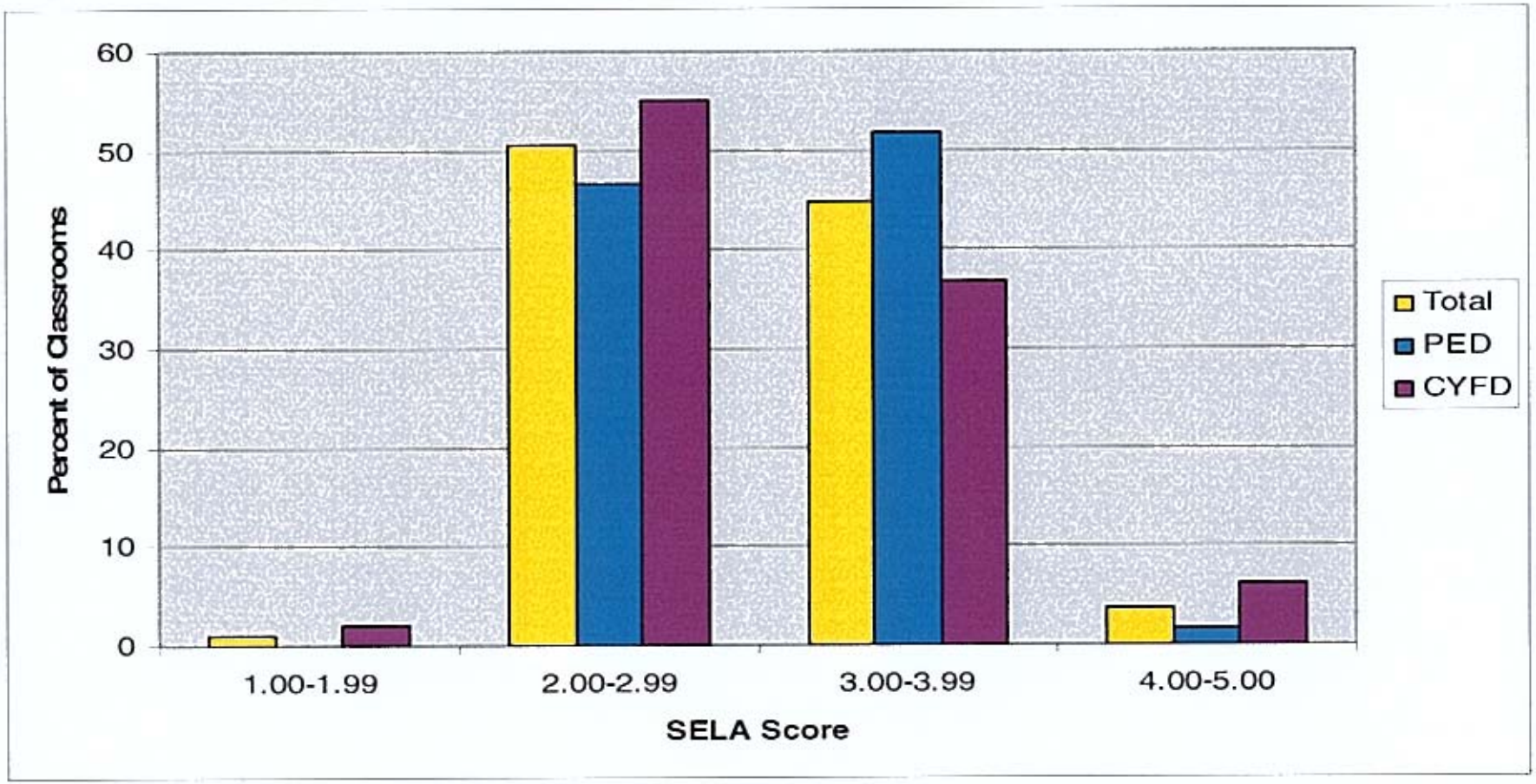
ECERS-R Findings, PED and CYFD



Differences between PED and CYFD are not statistically significant.

SELA Findings, PED and CYFD



Differences between PED and CYFD are not statistically significant.

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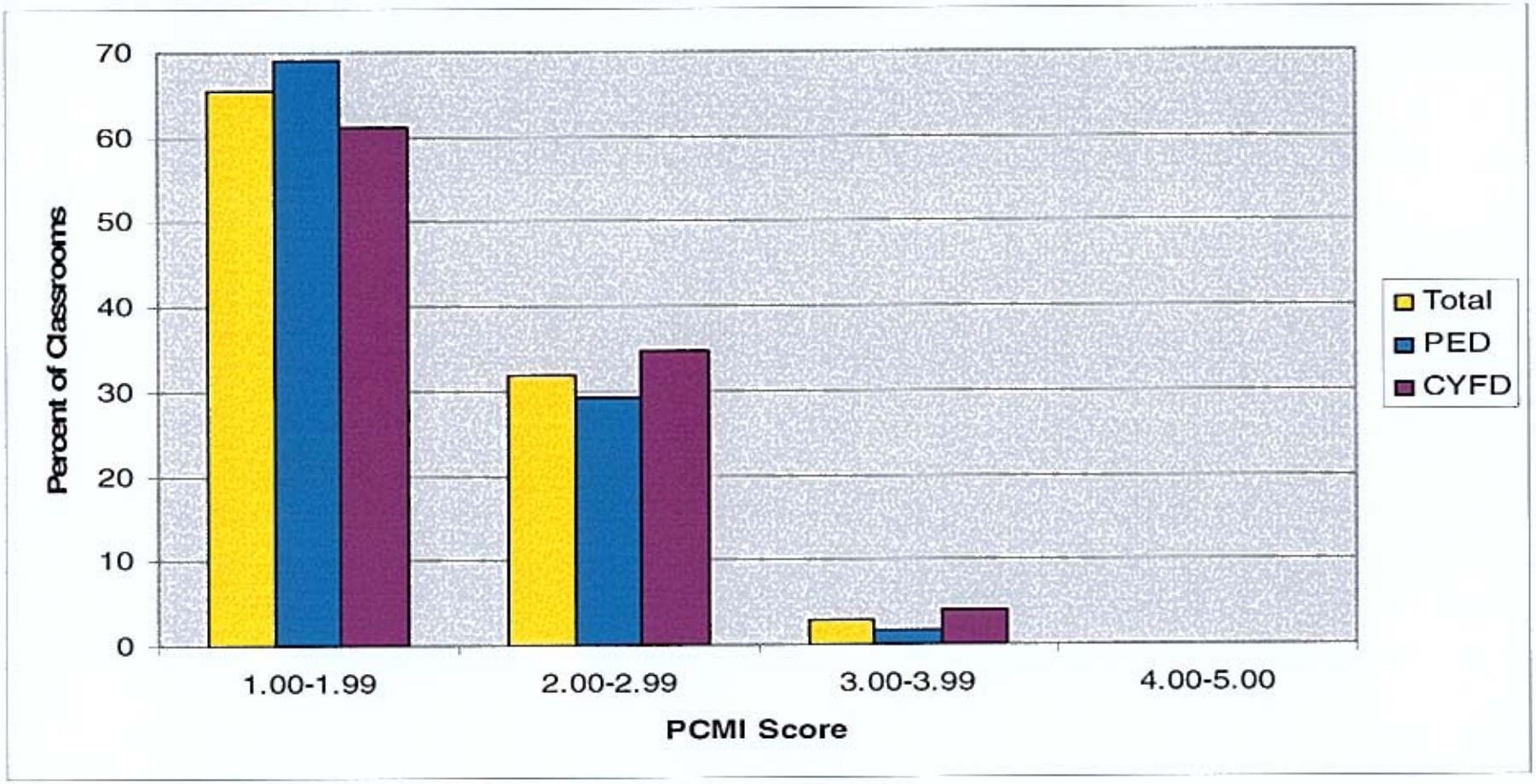
PCMI Findings, PED and CYFD



Differences between PED and CYFD are not statistically significant.

Interpreting the Findings

- Data from '07-'08 allow us to take a closer look at ***impacts*** of New Mexico PreK
- In its second year, New Mexico PreK produced meaningful impacts on early language, literacy, and math development
- Future data will allow us to keep examining impacts and answer new research questions

Ongoing Work

- New groups of 4-year-olds and 5-year-olds for '08-'09
- Larger sample of children to permit separate analyses for CYFD and PED
- More classroom quality data in early 2009
- Final report October 2009

Impacts of New Mexico PreK on Children's School Readiness at Kindergarten Entry:

Results from the Second Year of a Growing Initiative

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June 2008

Funding for this project was provided by the Department of Finance and Administration through the Legislature of the State of New Mexico, and The Pew Charitable Trusts.

Many thanks to our colleagues at Utah State University's Early Intervention Research Institute, who partnered with us to carry out this study, including Dr. Linda Goetze; Albuquerque-based logistics coordinators Marissa Nordstrom Perez and CJ Ondek; and their field staff. We would also like to thank Dr. Scott Hughes and Dr. Peter Winograd at the Office of Education Accountability, New Mexico Department of Finance and Administration; Judith Paiz at the state Children, Youth and Families Department; Ann Zuni and Richard LaPan at the state Public Education Department; Julienne Smrcka at the New Mexico Children's Cabinet; Dr. Kurt Steinhaus, formerly of the Office of the Governor; and the many school administrators and teachers who made this research possible. Finally, we are especially grateful to the preschoolers and kindergartners who took time out of their school days to participate in our study.

Impacts of New Mexico PreK on Children's School Readiness at Kindergarten Entry: Results from the Second Year of a Growing Initiative

Executive Summary

This is the second in a series of reports that estimates of impacts of participating in the New Mexico PreK initiative at age 4. We used a rigorous research design, the regression-discontinuity approach, to assess the academic skills of kindergartners who had enrolled in New Mexico PreK during the 2006-2007 school year. Children's receptive vocabulary, math, and early literacy skills were examined in a sample of 924 PreK participants from across the state. Findings show that New Mexico PreK continued to produce positive effects on children's learning during its second year of operations, consistent with findings from a similar study of the initiative's first year.

Specifically, by the beginning of kindergarten:

1. Children's vocabulary scores increased by about 6 raw score points due to their participation in the New Mexico PreK initiative. This represents an improvement of about 25% of the standard deviation of the control group, attributable to PreK. As our measure of vocabulary is strongly predictive of general cognitive abilities and later reading success, this finding is particularly important.

2. Children's early math scores increased by more than 2 raw score points due to their participation in New Mexico PreK. This represents an improvement of about 50% of the standard deviation of the control group, attributable to PreK. Early math skills assessed include simple addition and subtraction, basic number concepts, telling time, and counting money.

3. Children's scores on our measure of early literacy rose by about 14 percentage points. This represents an improvement of about 59% of the standard deviation of the control group, attributable to PreK. Children who attended New Mexico PreK know more letters, more letter-sound associations, and are more familiar with words and book concepts by the time they enter kindergarten.

Findings on these measures of vocabulary, math, and early literacy were both statistically significant and meaningful. Separate analyses were conducted to examine the impacts of attending PreK programs offered by the Public Education Department and those offered by the Children, Youth and Families Department. Although these analyses using disaggregated samples did not yield statistically significant results in all cases, this is likely due to the smaller sample sizes involved. In order to better examine the individual impacts of PED and CYFD PreK programs, and to further document the effects of New Mexico PreK as it grows, we will gather additional data in Fall 2008.

Introduction

In recent years, state prekindergarten initiatives have expanded rapidly, with total enrollments now topping one million children across the United States (Barnett, Hustedt, Friedman, Stevenson Boyd, & Ainsworth, 2007). A common goal of state pre-K programs is to prepare young children for kindergarten, recognizing that effective preschool programs help children to develop the knowledge, skills, and dispositions they need for success in school, such as rich vocabulary and complex sentence structure, an understanding of story structure, self-regulation, cooperative play, and abstract thinking. However, policies, areas of emphasis, and spending levels of state-funded pre-K programs vary widely from state to state. Some states offer pre-K to all children whose parents wish them to enroll, while others focus on offering pre-K to children meeting specific criteria, such family incomes below a certain level. Also, some state pre-K initiatives require teachers to have training comparable to teachers in the K-12 system, while others require less in the way of formal training. Given the tremendous growth in state-funded pre-K programs, and the high degree of variability across different states, it is important to examine the effectiveness of these types of programs in improving children's potential for school success.

While state-funded pre-K has not been extensively studied, previous research with model initiatives establishes that high-quality and well-funded preschool programs can make valuable contributions to improving children's learning and development (Barnett, 2002). Studies of well-known initiatives including the High/Scope Perry Preschool program, the Abecedarian Early Childhood Intervention program, and the Chicago Child-Parent Centers show that these types of programs produce economic benefits that greatly outweigh their costs (Barnett, 1996; Masse & Barnett, 2002; Reynolds, Temple, Robertson, & Mann, 2002). Benefits include higher scores on achievement tests and lower rates of special education placements and grade repetition, as well as long-term effects such as improved high school graduation rates and reduced crime and delinquency rates. In general, though, state-financed preschool programs are not as well funded as many model programs that have been intensively studied, and the state programs are larger and serve more diverse populations.

New Mexico is one of 38 states currently offering state-funded pre-K (Barnett et al., 2007). Established in 2005, New Mexico PreK is a statewide initiative offering voluntary center-based prekindergarten to 4-year-old children. Potential New Mexico PreK sites submit proposals for funding that are "…evaluated on the percentage and number of public elementary schools in the community that are not meeting the proficiency component required for calculating adequate yearly progress and that are serving children, at least sixty-six percent of whom live within the attendance zone of a Title 1 elementary school" (Pre-Kindergarten Act, NMSA 1978 § 32A-23-6, 2005). In prioritizing sites for funding, additional criteria specified in state statute include the adequacy of prekindergarten sites that already exist in a community, and the number of 4-year-olds in a community to be served by the proposed New Mexico PreK site.

Administrative responsibility for New Mexico PreK is shared by the state Children, Youth and Families Department (CYFD) and the state Public Education Department (PED). As a result, funding and enrollment for New Mexico PreK are split across programs administered by CYFD and programs administered by PED. Participating providers include public schools as well as private centers including Head Start, child care facilities, faith-based centers, and tribal programs. New Mexico PreK classrooms feature maximum class sizes of 20 with staff-child ratios of 1:10, and offer a variety of comprehensive and family support services in addition to their emphasis on early childhood education. Standards requiring all lead teachers to have bachelor's degrees and licensure in early childhood education are being phased in over time, such that teachers must meet this requirement within 5 years of their New Mexico PreK site being established (Barnett et al., 2007). Thus, lead teachers at sites that began operating during the initial year of the New Mexico PreK initiative must have bachelor's degrees and early childhood licensure by Fall 2010.

Each year since New Mexico PreK began, the state has increased both appropriation levels and total enrollments for state-funded prekindergarten. During its initial year of funding, the 2005-2006 school year, the appropriation was $4.95 million. A total of 1,538 4-year-olds were enrolled. The appropriation grew to $7.99 million for the 2006-2007 school year, with 2,195 4-year-olds enrolled. By the 2007-2008 school year, the appropriation of state funds grew to $14 million, with an enrollment of 3,570 4-year-olds. The budget for the 2008-09 school year calls for a further increase in New Mexico PreK funding, to $19.39 million, with an anticipated enrollment level of 4,867 4-year-olds. This trend of expansion is expected to continue in the upcoming years.

The National Institute for Early Education Research began an in-depth 4-year study of the New Mexico PreK initiative during the 2005-2006 school year, with funding from the state Office of Education Accountability. A primary goal of this research is to examine the impacts of New Mexico PreK on young children's receptive vocabulary, early math, and early literacy skills, as the initiative carries out a planned expansion. In an earlier report (Hustedt, Barnett, & Jung, 2007), we presented results from the first year of the new initiative. These findings are extremely positive, with statistically significant and meaningful impacts in each of the measured content areas by the time 4-year-olds from the initial year of New Mexico PreK entered kindergarten in Fall 2006. The current report uses a similar methodology to examine the impacts of participating in the second year of the initiative, among children who attended PreK as 4-year-olds during the 2006-2007 school year and entered kindergarten in Fall 2007.

Methods

The Research Model

Our ongoing evaluation of the New Mexico PreK initiative is based upon a regression-discontinuity design (RDD), which seeks to reduce selection bias. In state prekindergarten evaluations, the effects of an initiative are often estimated by comparing

test scores of children who attended the pre-K program with the scores of similar children who did not. However, as programs become more widely available, it is more difficult to find a comparable group of children who did not attend. Even where programs target only a subset of children (such as those from low-income families), a problem remains: children who attend preschool are different from children who do not. Preschool programs that target specific groups of children create these differences, but differences also come about because only some parents choose to enroll their children. In sum, children who attend state prekindergarten programs differ from those who do not because programs select children and families select programs.

Our solution to the problem of selection bias is to compare two groups of children who enrolled in New Mexico PreK. The RDD comparisons rely upon the state's stringent age cut-off for enrollment eligibility (August 31) to define the two groups. This concept is easier to understand by providing an extreme example: consider two children who differ only in that one was born the day before the age cut-off and the other the day after. When both are about to turn 5 years old the slightly younger child will enter PreK and the slightly older child will enter kindergarten having already completed PreK. If both are tested at that time, the difference in their scores provides an unbiased estimate of effect of PreK. If only children with birthdays one day on either side of the age cut-off were included in a study, the sample size would be unreasonably small. However, the approach can be applied to wider age ranges around the cut-off. In fact, all children entering kindergarten having completed the New Mexico PreK initiative, and all children beginning New Mexico PreK the same year, can be included in RDD analyses. The RDD approach has been used recently in a growing body of research examining the effects of state-funded pre-K programs in Oklahoma (Gormley, Gayer, Phillips, & Dawson, 2005), New Jersey (Frede, Jung, Barnett, Lamy, & Figueras, 2007), Arkansas (Hustedt, Barnett, Jung, & Thomas, 2007), and a number of other states (Wong, Cook, Barnett, & Jung, 2008). Additional information about the how the RDD approach was used in New Mexico is provided in Appendix A.

In Fall 2006, we implemented the RDD approach in New Mexico for the first time, addressing the research question of whether participating in the New Mexico PreK initiative at age 4 has an impact on children's academic skills at kindergarten entry (Hustedt, Barnett, & Jung, 2007). We conducted an additional RDD study in Fall 2007, and describe the results in the current report. The RDD methodology will be used for a third and final time as part of this project in Fall 2008. By conducting separate RDD studies during three consecutive school years, we will be able to document the estimated effects of the New Mexico PreK initiative as it begins to mature.

Sampling Strategy

When selecting our sample for Fall 2007, we first identified all CYFD and PED sites that were operating New Mexico PreK programs by the beginning of the 2006-2007 school year and that continued operations during the 2007-2008 school year. (We would not expect to locate sufficient numbers of kindergartners who had already completed New Mexico PreK in communities offering the initiative for the first time in 2007-2008.)

At each identified PreK site we randomly selected a pre-specified number of children to participate in our study, based on the proportion of New Mexico PreK enrollees statewide enrolled at that particular site. Individuals were next selected from PreK class enrollment lists using a procedure to ensure randomness, and were assessed at their PreK site until we had completed the designated number of assessments.

In Fall 2007, we also chose a corresponding number of kindergartners for each prekindergarten site. We identified kindergartners who had participated in New Mexico PreK the previous year using the state's 2006-2007 enrollment list, and randomly selected children from that list. Children were tracked to their current elementary schools using information about their anticipated kindergarten destinations collected at the end of the previous school year by PED and CYFD, and compiled by the state Office of Education Accountability. Current kindergarten students were then assessed at their elementary schools.

New Mexico-based research staff—trained by NIEER and working under the supervision of an Albuquerque-based coordinator and Utah State University—visited each sampled New Mexico PreK site as well as the identified kindergarten sites in the same communities. Research staff conducted child assessments as early as possible in the school year.

The Sample

Our RDD methodology relies upon two groups of children, as mentioned previously. The group of kindergartners who attended the New Mexico PreK initiative the previous year (2006-2007) is called the *Preschool* group, or the experimental group. Children who received some form of early care or education other than the New Mexico PreK initiative at age 4 were not included in this group. The second group of children is called the *No Preschool* group, or the control group. This group is referred to as the No Preschool group despite the fact that these children were enrolled in PreK during the 2007-2008 school year, because at the time of the assessments they were just beginning their preschool year and had not had the preschool "treatment" yet.

In New Mexico, the No Preschool group included 519 children enrolled in 131 New Mexico PreK classrooms across the state. The Preschool group included 405 children enrolled in 214 kindergarten classrooms across the state. The total New Mexico sample size for Fall 2007 was 924 children.

Our sample for the 2007-2008 school year is 53.8% female. Children's home languages are: English, 69.6%; Spanish, 13.8%; both English and Spanish, 7.6%; both English and Navajo, 5.4%; and Other, 3.6%. The percentage of children in each ethnic category is as follows: Latino, 57.3%; Native American, 19.5%; White, 18.6%; African American, 1.5%; Asian, 1.5%; and Other, 0.2%.

Ethnicities of participants in our study generally reflect those of the population of children participating in the New Mexico PreK program. For the 2007-2008 school year,

the percentage of all New Mexico PreK children in each ethnic category is as follows: Hispanic, 63.0%; American Indian and Alaska Native, 15.7%; Caucasian, 18.0%; Black, 2.2%; and Asian, 1.1%.

For purposes of comparison, New Mexico-specific estimates from the U.S. Census (Bureau of Business and Economic Research, 2007) show that the percentage of New Mexico children ages birth to 5 in each ethnic category is as follows for 2006: Hispanic, all races, 54.3%; White, 30.3%; American Indian and Alaska Native, 10.6%; Two or more races, Non-Hispanic, 2.0%; Black, 1.7%; and Asian, 1.1%.

Instrumentation

Child outcome measures in the New Mexico PreK study focused on receptive vocabulary, mathematics, and early literacy skills. Each of the measures selected for this study allowed child assessments to be conducted in either English or Spanish. Specific details about the measures and our protocols for determining the language used for each child assessment are provided below. Also, recognizing that some children in New Mexico may need assistance with the cultural context of the standardized assessment instruments, we developed an additional protocol so that a "cultural broker" could be present for children who might have difficulties with the instruments as a result of cultural differences. Teachers were asked to identify children who needed this type of assistance and to identify a cultural broker who could be present during testing. We requested that the cultural broker be someone familiar with the child's own culture, and ideally a school employee familiar to the child.

Receptive Vocabulary. Once again during the 2007-2008 school year, children's receptive vocabulary was measured using the Peabody Picture Vocabulary Test, 3rd Edition (PPVT-III; Dunn & Dunn, 1997) and for Spanish-speakers, the *Test de Vocabulario en Imagenes Peabody* (TVIP; Dunn, Padilla, Lugo, & Dunn, 1986). The PPVT is predictive of general cognitive abilities and is a direct measure of vocabulary size. The rank order of item difficulties is highly correlated with the frequency with which words are used in spoken and written language. This test is adaptive (to avoid floor and ceiling problems), establishing a floor below which the child is assumed to know all the answers and a ceiling above which the child is assumed to know none of the answers. Reliability is good as judged by either split-half or test-retest reliabilities. The TVIP is appropriate for measuring growth in Spanish vocabulary for bilingual students and for monolingual Spanish speakers. The results of these tests are found to be strongly correlated with school success. Raw scores are reported here.

All children in this study were initially administered the PPVT, regardless of their home language, to get a sense of their receptive vocabulary skills in English. Children who spoke some Spanish were also subsequently administered the TVIP. The testing session was then continued, with all additional measures administered in either English or Spanish, depending upon which language the child's teacher designated as his or her best testing language.

Mathematical Skills. Children's early mathematical skills were again measured with the Woodcock-Johnson Tests of Achievement, 3rd Edition (WJ-III; Woodcock, McGrew & Mather, 2001) Subtest 10 Applied Problems. For children whose best testing language was Spanish, the *Bateria Woodcock-Munoz Pruebas de Aprovechamiento – Revisado* (Woodcock & Munoz, 1990) *Prueba 25 Problemas Aplicados* was used. Subtests of the Woodcock-Johnson are reported to have good reliability. Raw scores are reported here.

Early Literacy. Print knowledge was measured using the Print Knowledge subtest of the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007) during the 2007-2008 school year. The TOPEL is the published, normed version of the unpublished Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP; Lonigan, Wagner, Torgesen & Rashotte, 2002), which was used in the New Mexico PreK study during the 2006-2007 school year. As the TOPEL has not yet been published in Spanish, in 2007-2008 we continued using the Spanish version of the Pre-CTOPPP with children whose best testing language was Spanish.

The TOPEL has been used with both middle-class and low-income samples, and subtests are reported to have good to excellent reliability. Print Knowledge items measure whether children recognize individual letters and letter-sound correspondences, and whether they differentiate words in print from pictures and other symbols. Percentages of items answered correctly out of the total 36 Print Knowledge subtest items are reported here.

Results

A statistical description of the sample by group (entering preschool and entering kindergarten) is provided in Tables 1 and 2. As can be seen in Table 1, the groups are generally similar in their demographic characteristics, indicating that the sampling approach was successful in obtaining comparable groups. The only statistically significant difference between the groups was that cultural brokers were more frequently present for children entering PreK than for children entering kindergarten ($p < .05$). Differences in children's gender and home languages approached but did not reach statistical significance. All subsequent analyses were statistically controlled for whether a cultural broker was present. Additional covariates were used in our statistical models to control for time of assessment, gender, ethnicity, and whether the assessment instruments were administered in English or Spanish. The test scores are different between the two groups, as would be expected (see Table 2). However, care must be taken not to interpret the simple differences between the groups' test scores as an estimate of the PreK program's impact. Differences in standard scores are age-adjusted, and their relationship to our RDD estimates of program effects is discussed below.

Our RDD analyses were conducted in STATA (StataCorp, 2005) using raw scores, and all standard errors were clustered by classroom. In these RDD analyses, there is no *a priori* expectation that the estimated relationship between PreK participation and child outcomes should be linear. Therefore, in addition to using linear models, we also

estimated higher order polynomial forms of the regression equation. This provides a check against mis-specifying the functional form of the regression line. We conducted squared and cubic transformations of the selection variable (the difference between birth date and cut-off date) and its interaction with the cut-off variable. We found that the linear model provided the best estimate of the relationship between participating in New Mexico PreK and children's scores on the PPVT, our measure of vocabulary skills. For our measure of early literacy, the TOPEL, the second-order (quadratic) model provided the best estimate. For our measure of math skills, the WJ-III, the third-order (cubic) model provided the best estimate. Linear, quadratic, and cubic estimates for each measure are shown in Table 3. For the remainder of this report, we will focus on the linear estimate for the PPVT-III, the quadratic estimate for the TOPEL, and the cubic estimate for the WJ-III.

Table 1. Statistical Description of the Sample by Group, for Children Entering PreK and Children Entering Kindergarten from PreK

	Entering	
	PreK	Kindergarten
Number in group	519	405
Girls (%)	56.5	50.4
Ethnicity (%)		
White	19.8	17.0
Latino	55.5	59.5
Native American	20.4	18.3
Other/missing	3.8	5.2
Cultural broker present (%)	3.6	2.2
Home Language		
English only	73	67.9
Spanish only	11.4	17.0
English/Spanish	7.9	7.4
English/Native American Language	5.8	6.9
Assessment conducted only in English (%)	82.3	80.2
Age (in months) when assessed (Mean/*SD*)	55.18	67.68
	4.34	3.78

Note. *SD* = Standard Deviation

Table 2. Assessment Scores by Group, for Children Entering PreK and Children Entering Kindergarten from PreK

Measure	Entering PreK		Entering Kindergarten		
	Mean	*SD*	Mean	*SD*	Sample Size
PPVT raw scores	46.11	22.43	61.03	22.63	921
PPVT standard scores	87.77	21.01	88.80	19.82	920
WJ-III raw scores	10.20	4.56	14.88	4.71	923
TOPEL % correct	32.88	23.59	69.98	25.74	920

Note: *SD* = Standard Deviation

In reporting the RDD findings, we prefer to emphasize the results using one year as the margin around the kindergarten cut-off date, because this allows for the largest sample size. However, we also conducted linear regressions restricting the sample to children born within 3- and 6-month spans before and after the cut-off date. Restricting the sample to observations closest to the cut-point should reduce any potential bias, though the smaller sample sizes increase the standard errors. As shown in Table 3, linear estimates using 3-, 6-, and 12-month margins are similar. The primary analyses presented in the remainder of this report include children with birthdays up to 12 months before and 12 months after the kindergarten cut-off date.

Our primary analyses were "sharp" regression-discontinuity models that included 893 children in our sample, dropping 31 children (3.4% of the total) whose birth-date information appears to be inconsistent with the birth-date cut-off requirement for their PreK or kindergarten programs. When less than 5% of the sample is dropped in this way, exclusion of such cases is thought to have little effect on the result (Judd & Kenny, 1981; Shadish, Cook, & Campbell, 2002; Trochim, 1984). As an additional check to confirm that the findings were similar, we also conducted instrumental variable analyses with all 924 children. Results of these analyses were indeed similar, as shown in Table 4.

Table 3. Estimated Effects Based on Functional Form and Margin Around Kindergarten Cut-Off Date

	Parametric models used in analysis				
	Linear, 12 months	Quadratic, 12 months	Cubic, 12 months	Linear truncated at 3 months	Linear truncated at 6 months
Receptive Vocabulary	**5.55*** **(2.35)**	8.26* (3.30)	13.19* (3.83)	12.08* (4.14)	10.26* (3.04)
Math	1.88* (0.56)	1.99* (0.81)	**2.26*** **(0.94)**	2.61* (1.07)	2.34* (0.78)
Early Literacy	21.36* (3.32)	**13.66*** **(4.40)**	13.36* (5.55)	15.15* (6.05)	17.39* (4.47)

Note: Receptive vocabulary data represent PPVT raw score point increases. Math data represent WJ-III Applied Problems subtest raw score point increases. Early literacy data represent increases in percentage correct on the TOPEL Print Knowledge subtest.
Robust standard errors are shown in parentheses. Boldfaced terms show the selected estimates.
* Significant at $p < .05$.

Child Outcomes at Kindergarten Entry

Estimated effects of the New Mexico PreK initiative on children's receptive vocabulary, mathematics, and early literacy skills are summarized in this section using results from the "sharp" RDD models (see Table 3). The effects of the New Mexico PreK program on children's receptive vocabulary, mathematics, and early literacy are shown in graphical form in Appendix A.

The estimated effect of state-funded preschool on children's receptive vocabulary as measured by the PPVT is statistically significant ($p < .05$). Attending the New Mexico PreK initiative at age 4 is estimated to increase PPVT scores by about 5.55 raw score points. This represents an improvement of about 25% of the standard deviation for the control (No Preschool) group.

The estimated effect of state-funded preschool on children's early math skills as measured by the Woodcock-Johnson-III Applied Problems subtest scores also is statistically significant for the New Mexico PreK initiative ($p < .05$). The increase in scores for New Mexico PreK children due to the program is about 2.26 raw score points. This represents an improvement of about 50% of the standard deviation for the control (No Preschool) group.

Table 4. Estimated Effects Based on Functional Form and Margin Around Kindergarten Cut-Off Date, Using Instrumental Variable Analyses

	Parametric models used in analysis				
	Linear, 12 months	Quadratic, 12 months	Cubic, 12 months	Linear truncated at 3 months	Linear truncated at 6 months
Receptive Vocabulary	6.31* (2.54)	7.94* (3.51)	**11.39* (4.08)**	15.82* (6.24)	11.57* (4.03)
Math	1.74* (0.57)	1.51* (0.73)	**1.62* (0.79)**	2.20+ (1.20)	1.92* (0.84)
Early Literacy	21.94* (3.42)	**16.66* (4.29)**	15.83* (4.40)	11.02 (6.92)	14.52* (4.92)

Note: Receptive vocabulary data represent PPVT raw score point increases. Math data represent WJ-III Applied Problems subtest raw score point increases. Early literacy data represent increases in percentage correct on the TOPEL Print Knowledge subtest.
Robust standard errors are shown in parentheses. Boldfaced terms show the selected estimates.
* Significant at $p < .05$.

Finally, the effect of state-funded preschool on children's Print Knowledge scores is statistically significant for New Mexico PreK ($p < .01$). The effect of the New Mexico PreK initiative on children's gains in Print Knowledge scores is 14% more items answered correctly. This increase represents approximately 59% of the control (No Preschool) group standard deviation on the Print Knowledge subtest.

The RDD estimated effects on raw scores can be roughly translated into changes in standard scores. Thus, a raw score change of 5 points translates into a standard score change of 2 to 4 points on the PPVT, and a raw score change of 13 points translates into a standard score change of about 10 points, depending on the age of the child. It is useful to compare the RDD estimates to the actual means for the preschool-entry and kindergarten-entry samples. This comparison shows an increase of only about 1 point on the PPVT. The implication is that without the preschool program, standard scores would actually have declined, that is, preschool-eligible children actually fall further behind other children if they do not attend the state prekindergarten program. Although this is plausible, such changes are not expected to be large. This reinforces the notion that the linear estimates in the "sharp" RDD are the most appropriate. In addition, the fact remains that children who attended PreK score had an average raw score of only 89 on the PPVT, which corresponds to the 23rd percentile. Thus, there is substantial scope to further increase the effectiveness of the New Mexico PreK initiative.

Receptive Vocabulary, Math, and Early Literacy Results for CYFD and PED

Although this study was initially designed with the goal of estimating the effects of the entire New Mexico PreK initiative (as a single entity), we also conducted additional RDD analyses to separately examine the impacts of participating in PreK sites offered through PED and those offered through CYFD. These analyses were based on the subgroups of 466 children who attended New Mexico PreK at PED sites and 427 children who attended New Mexico PreK at CYFD sites. The results of those analyses, and comparisons with analyses from the overall New Mexico PreK sample are shown in Table 5.

Table 5. Estimated Effects, Disaggregated for PED and CYFD Sites and Overall

Measure	PED	CYFD	Overall sample
Receptive Vocabulary			
Linear	7.63*	3.20	**5.55***
Math			
Cubic	1.11	2.66+	**2.26***
Linear	1.76**	1.83+	1.88**
Early Literacy			
Quadratic	12.41+	11.46+	**13.66****
Linear	22.03***	20.17***	21.36***

Note: Receptive vocabulary data represent PPVT raw score point increases. Math data represent WJ-III Applied Problems subtest raw score point increases. Early literacy data represent increases in percentage correct on the TOPEL Print Knowledge subtest.
Boldfaced terms show the selected estimates.
+ $p < .10$. * $p < .05$. ** $p < .01$.

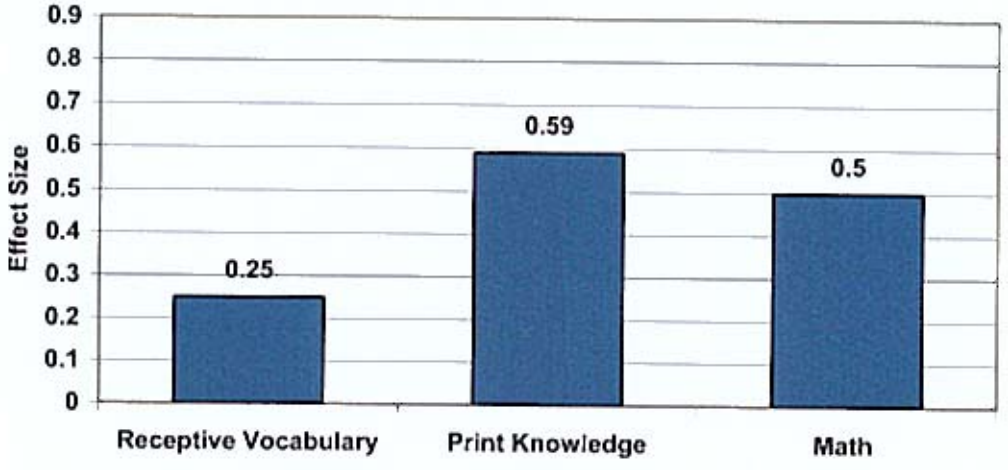
As previously reported, the New Mexico PreK initiative as a whole produced statistically significant impacts on measures of children's receptive vocabulary, mathematics, and early literacy at kindergarten entry. It should be noted that the separate analyses for CYFD and PED are based on smaller samples, and thus have less power to detect a statistical effect. As a result, the models based on data from the overall sample provide more precise estimates and a better fit to the data. Data from the overall sample may also take a different functional form than data restricted to the CYFD or PED subgroups. Due to these potential differences, in Table 5 we provide results from linear models and for the appropriate polynomial models selected for use with the overall sample for mathematics and early literacy scores. When results are examined separately for children attending PED or CYFD sites, the findings show patterns similar to those found for the entire New Mexico PreK sample, though statistical significance was not always attained for the site-specific analyses.

Summary and Discussion

Our findings show that the New Mexico PreK initiative produced positive effects on children's learning during its second year of operations, consistent with our RDD findings from the initiative's first year (Hustedt, Barnett, & Jung, 2007). The current analyses provide further evidence that New Mexico PreK has positive impacts on children's language, mathematics, and early literacy skills that are evident at the beginning of kindergarten. These types of initial effects are likely to lead to increased school success as well as continued advantages in reading and math skills.

Figure 1 provides an overview of our latest findings, showing estimated effect sizes for the impact of New Mexico PreK on children's receptive vocabulary, print knowledge, and early math scores. The effect sizes in this figure were calculated by comparing the regression coefficient to the standard deviation of the control group (analogous to Glass's delta), and are a common way of standardizing the estimated effects of the prekindergarten program. As reported for the previous school year, the estimated impacts of New Mexico PreK on children's learning are both substantive and meaningful when measured at kindergarten entry.

Figure 1. The Effect of the New Mexico PreK Initiative on Children's Scores across Measures



These effect size calculations also provide a basis for comparing results from the second year of the New Mexico PreK initiative to results from the first year (Hustedt, Barnett, & Jung, 2007). For our receptive vocabulary measure, the estimated effect size was 0.25 using Fall 2007 data, compared to 0.36 for Fall 2006. The effect size for our mathematics measure was 0.50 for Fall 2007, compared to 0.39 the previous year. While effect sizes from the two school years appear somewhat different at first glance, confidence intervals used to gauge the precision of our estimates show that estimates from the previous year fall within the confidence intervals for our current estimates. This

shows that the estimated impacts of New Mexico PreK on children's vocabulary and math scores are consistent across the two years of this study. The effect size for our measure of print knowledge measure was 0.59 for Fall 2007 compared to an effect size of 1.16 for print awareness the previous year; in that case the apparent decrease in effect size may be due to differences between the instruments used at the two assessment points.

Effect sizes for the New Mexico PreK initiative are comparable in magnitude to those reported for other well-regarded state preschool programs, such as the one in Oklahoma (Gormley et al., 2005). New Mexico's situation is unique, though, in that the evaluation of its state prekindergarten initiative began during the same school year as the initiative itself. The Oklahoma study and the other state prekindergarten evaluations conducted by NIEER (Frede et al., 2007; Hustedt, Barnett, Jung, & Thomas, 2007; Wong et al., 2008) have focused on well-established programs that had been operating for a number of years before the evaluation began. While the impacts found in this study are precursors to later success in school and may ultimately lead to the types of economic benefits found in long-term studies of preschool education (Schweinhart, Montie, Ziang, Barnett, Belfield, & Nores, 2005; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Reynolds et al., 2002), New Mexico PreK should also be viewed as a work in progress. The children who took part in this research were participants during the first years of a new initiative that was not yet widely available to their peers across the state. In fact, only 8% of the state's 4-year-olds were enrolled in New Mexico PreK during the 2006-2007 school year (Barnett et al., 2007), when the Preschool group in this study completed PreK. As noted earlier, PPVT standard scores at kindergarten entry were only 89 on average, which puts them at the 23rd percentile. Thus, there remain substantial opportunities to increase the effectiveness of the New Mexico PreK initiative.

As the New Mexico PreK initiative matures, children's experiences may start to differ from those reported here. Although an income requirement is not used to determine eligibility, two-thirds of the children enrolled at a PreK site must live within the attendance area of a Title I school, and sites are also prioritized for funding based on local schools' progress toward adequate yearly progress under No Child Left Behind (Barnett et al., 2007; Pre-Kindergarten Act, NMSA 1978 § 32A-23-6, 2005). These current emphases lead to a focus on serving children from the most disadvantaged neighborhoods or communities. As further expansion occurs, priorities for funding may shift, with state-funded prekindergarten becoming more accessible to children who are less disadvantaged.

Also, teacher education requirements are being phased in as the New Mexico PreK initiative matures. All lead teachers at a PreK site must have a bachelor's degree and licensure in Early Childhood Education within the first five years of that site's establishment. Sites that began operating during the initiative's first year will be required to fully meet this requirement by the 2010-2011 school year. When teacher degree requirements are more fully implemented during the upcoming years, children are likely to benefit, as research supports the importance of having teachers with bachelor's degrees and specialized training in early childhood education (Barnett, 2003; Bowman, Donovan,

& Burns, 2001; Burchinal, Cryer, Clifford, & Howes, 2002; Whitebook, Howes, & Phillips, 1989). These and other improvements to program quality that occur in conjunction with the expansion of New Mexico PreK may have a positive effect on the future impacts of PreK on children's school readiness.

Although the results from CYFD and PED sites were similar in magnitude to the overall results from the entire sample, the individual CYFD and PED estimates of the impacts of PreK did not reach statistical significance in all cases. In general, though, these site-specific analyses lack the statistical power of the analysis utilizing the overall sample. Having a larger sample size allows us to have greater confidence in our estimates of the effects of the New Mexico PreK initiative, and for statistical models that better fit the data, including quadratic and cubic functions selected for the overall sample. The lack of statistical significance for some of the child outcome results for CYFD and PED is most likely due to the smaller sample sizes when analyses are limited to sites administered by a single agency, and not due to the lack of a relationship between CYFD or PED PreK participation and child outcomes. In fact, each of the non-significant relationships was positive and several approached significance. During the 2008-2009 school year, we will revise our methodology to provide a closer look at the impacts of New Mexico PreK at PED and CYFD sites. We will increase PED and CYFD samples to approximately 700 children each, which should allow for better estimates of the effects of attending PreK sites administered by each agency.

This is the second in a series of three planned regression-discontinuity reports on the effects of New Mexico PreK, focusing on child data collected in Fall 2007. The data presented here show that the New Mexico PreK initiative continues to have statistically significant effects on children's vocabulary, mathematics, and early literacy skills that are evident when they begin kindergarten. These findings are consistent with our findings from studies of other states' prekindergarten initiatives (Frede et al., 2007; Hustedt, Barnett, Jung, & Thomas, 2007; Wong et al., 2008). By repeating the RDD again during the 2008-2009 school year, we will gain further insight into changes in the impacts of New Mexico's state-funded prekindergarten initiative as it expands to serve even more children. As a result, our series of reports taken together will document progress by the New Mexico PreK initiative as it continues to mature.

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Appendix: Applying the RDD Approach to the New Mexico PreK Study

The regression-discontinuity design (RDD) takes advantage of a strict kindergarten enrollment policy that determines enrollment using the child's date of birth to define the groups. By relying on this assignment rule, one that is unlikely to be related to child and family characteristics, the RDD seeks to reduce the likelihood of selection bias. Thus, rather than comparing children who attended and did not attend the New Mexico PreK initiative (raising concerns that the same child and family factors that led program eligibility or a family seeking to enroll a child in the program also contribute to differences in learning and development), the RDD approach compares two groups of children who enroll in New Mexico PreK. One group has completed PreK and the other is just entering.

One way to interpret the RDD approach is to view it as similar to a randomized trial for children near the age cut-off. The RDD creates groups that *at the margin* differ only in that some were born a few days before the age cut-off and others a few days after the cut-off. When these children are about to turn 5 years old, the slightly younger children will enter PreK and the slightly older children will enter kindergarten having already attended PreK. If all of the children are tested at that time, the difference in their scores can provide an unbiased estimate of the effect of the preschool initiative under reasonable circumstances. However, if the sample was restricted to children with birthdays near the age eligibility cut-off, the total sample size would be too small.

Alternatively, the RDD can be viewed as modeling the relationship between an assignment variable (age) and measures of children's learning and development. The pre-cut-off sample is used to model the relationship prior to treatment. The post-cut-off sample is used to model the relationship after the treatment. This approach can be applied to wider age ranges around the cut-off, though its validity depends on correctly modeling the relationship. As there is always some uncertainty about what this looks like (is it linear, and if not what does the curve look like?), we test a variety of models (different functional forms for the equation) to see which model best fits the data, in addition to conducting other tests of the RDD assumptions. Under either view, it is important that there is minimal misallocation (exceptions to the rule) around the age cut-off.

To identify the proper functional form for our RDD analyses, we conducted a graphical analysis and a series of parametric regressions using alternate specifications. We begin with graphs for each child outcome measure, shown in Figures A1-A3. Two types of lines are fitted onto scatterplots on each side of the cut-offs. The first plot in each figure depicts a linear regression line, and the second shows a non-parametric regression line based on locally weighted smoothing, called Lowess. This strategy can be useful for data exploration because it relaxes assumptions about the form of the relationship between the assignment and outcome (Cleveland & Devlin, 1988). For each y_i, we obtain a smoothed value through weighted regressions involving only observations within a local interval, with observations closer to y_i weighted most heavily.

Each plot in Figures A1- A3 shows an estimated regression line for children's predicted test scores by age, measured by the number of days their birth date is from the program enrollment cut-off date. The section of the line to the left of the enrollment cut-off date (shown as "0" in the figures) represents scores of children beginning the state pre-K program, while the section of line to the right of the enrollment cut-off date represents scores for children entering kindergarten. The discontinuity in the regression line at the cut-off date shows the estimated effect of New Mexico PreK.

Next, we run a series of regressions to obtain parametric estimates of the treatment effect. In order to describe the effect of PreK participation on child outcomes, we model children's vocabulary, math, and early literacy scores. For the ith child in classroom j, the relevant equation is:

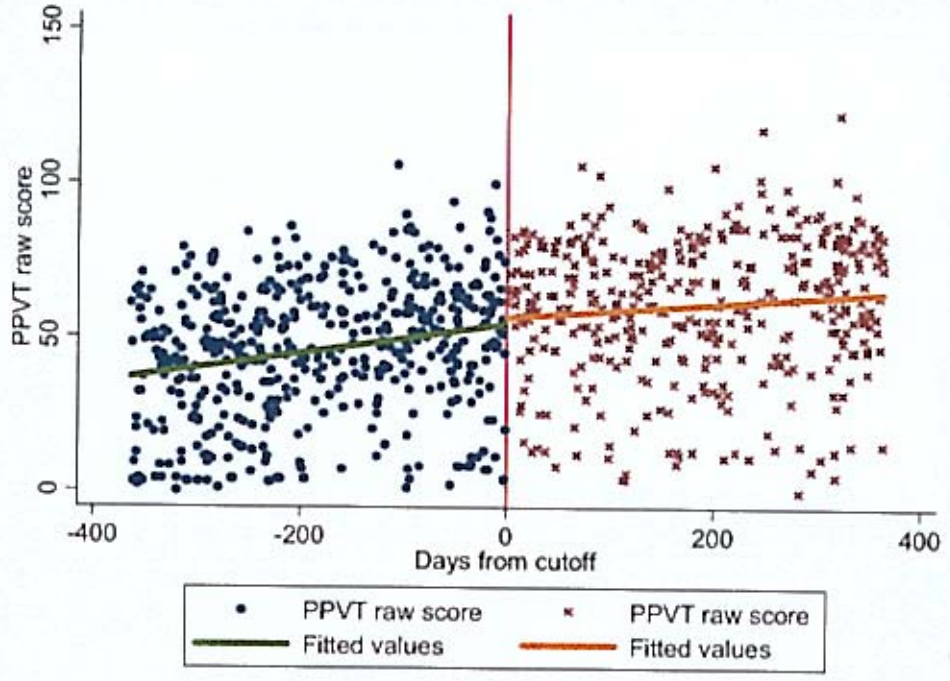
$$Y_{ij} = a + BX_{ij} + \beta_1(\text{Pre-K})_{ij} + g(AV)_{ij} + \varepsilon_i$$

In this equation, Y_{ij} is child i's outcome, X_{ij} is a vector of child characteristics, Pre-K_{ij} is a dichotomous indicator variable such that T=1 for the PreK "treatment" and T=0 for no treatment, and $g(AV)_{ij}$ is a smooth function of the continuous assignment variable. We check the robustness of our estimates by considering alternative specifications for $g(AV)_{ij}$, including polynomials and interaction terms. We determine the order of the polynomial approximation to the $g(AV)_{ij}$ function by examining the statistical significance of the higher order and interaction terms.

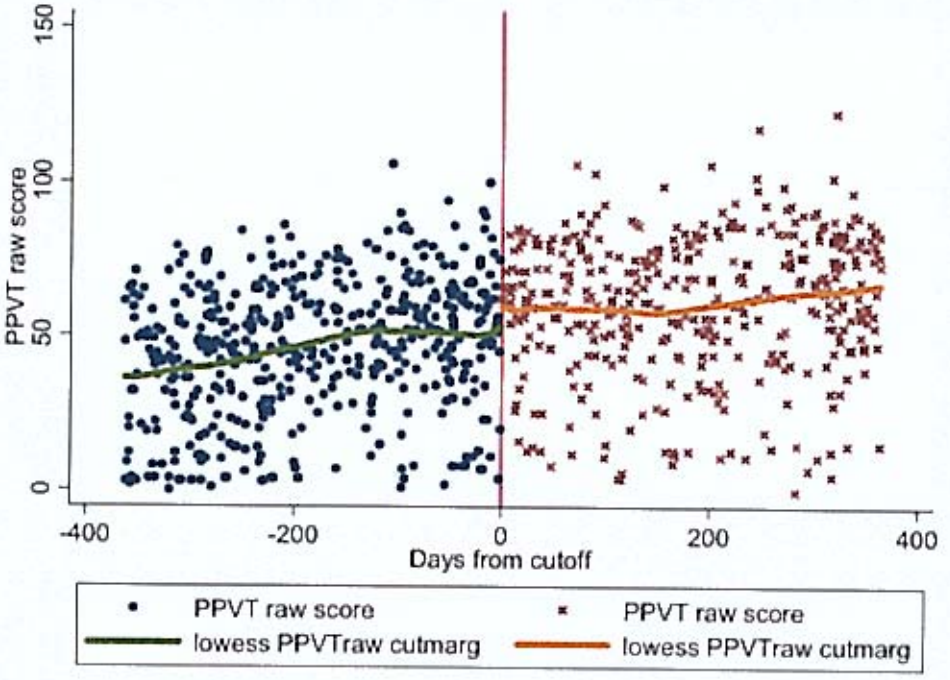
Following Trochim (1984), when the functional form of the regression model is ambiguous, we overfit the model by including more polynomial and interaction terms than needed, yielding unbiased but less efficient estimates. In all the parametric analyses we use Huber-White standard errors adjusted for clustered data at the classroom level. As a final parametric check on functional form, we truncate the dataset to include only observations near the cut-off. In placing greater weight on these observations, we eliminate the influence of extreme assignment variable values that often play a disproportionate role in mis-specifying functional form. We rerun the parametric analyses including only children who have birthdates within 6 and then 3 months on either side of the enrollment cut-off.

Graphical and parametric analyses provide evidence that the response function was linear for receptive vocabulary, quadratic for early literacy outcomes, and cubic for mathematics outcomes. Estimates were robust with respect to narrowing the time window around the birthdate cut-off to 6 and 3 months.

Figure A1. Linear and Lowess Plots of PPVT Receptive Vocabulary Results

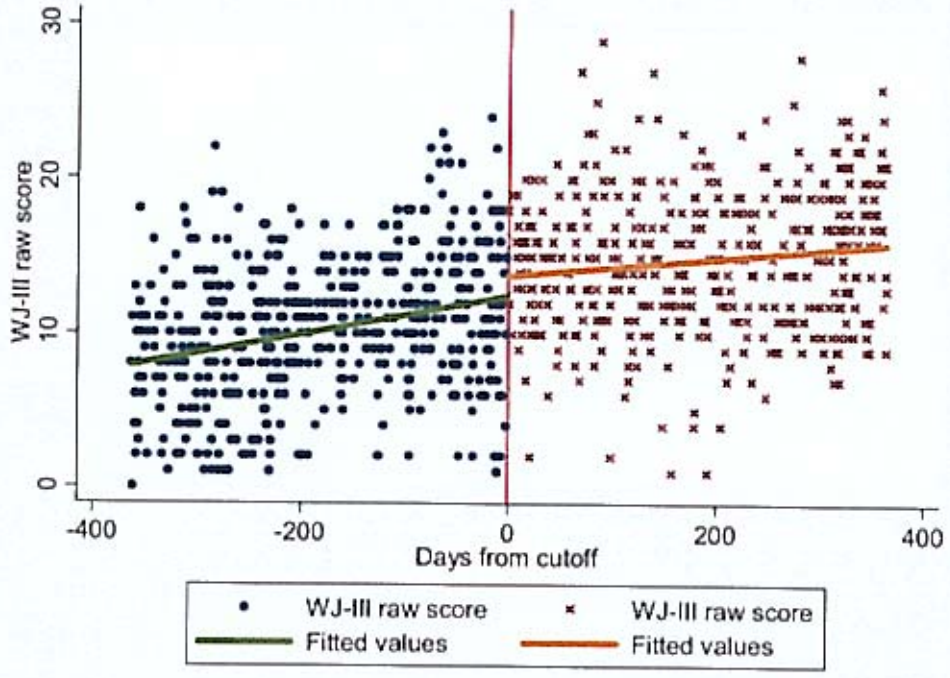


(1) Linear Plot

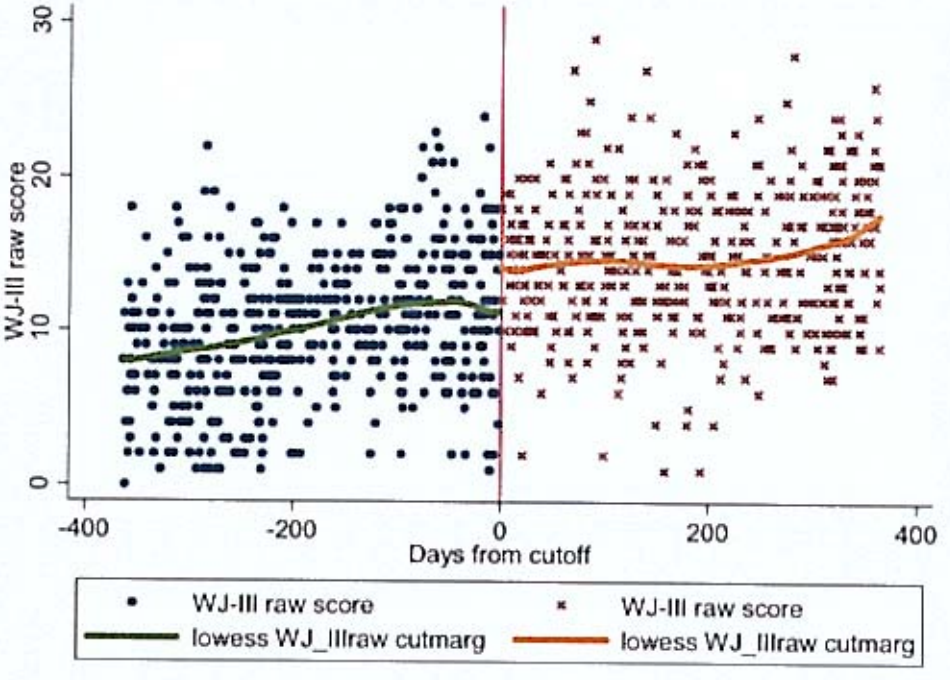


(2) Lowess Plot

Figure A2. Linear and Lowess Plots of WJ-III Applied Problems Results

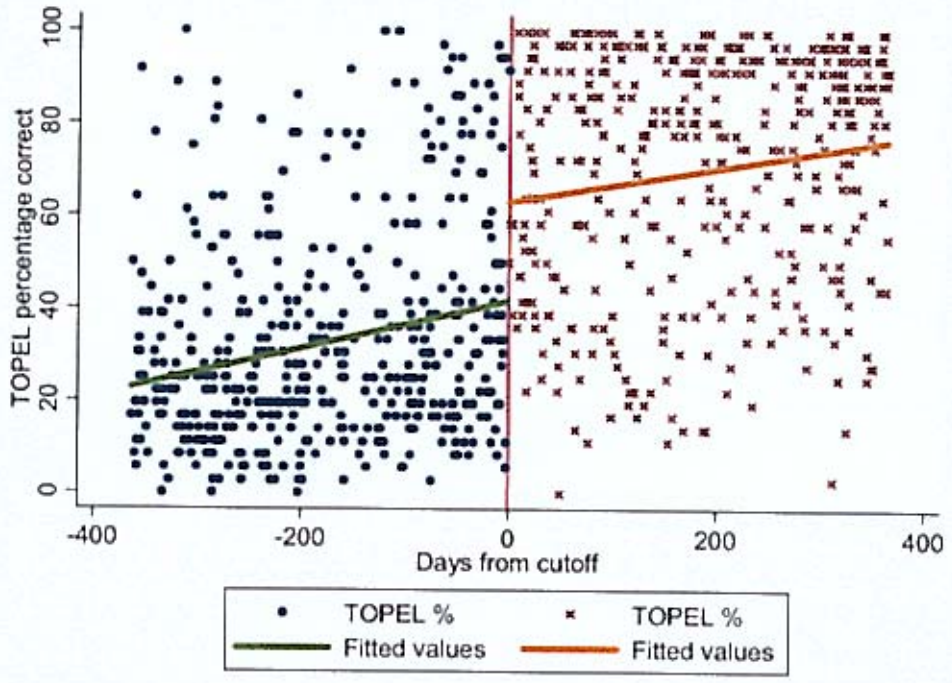


(1) Linear Plot

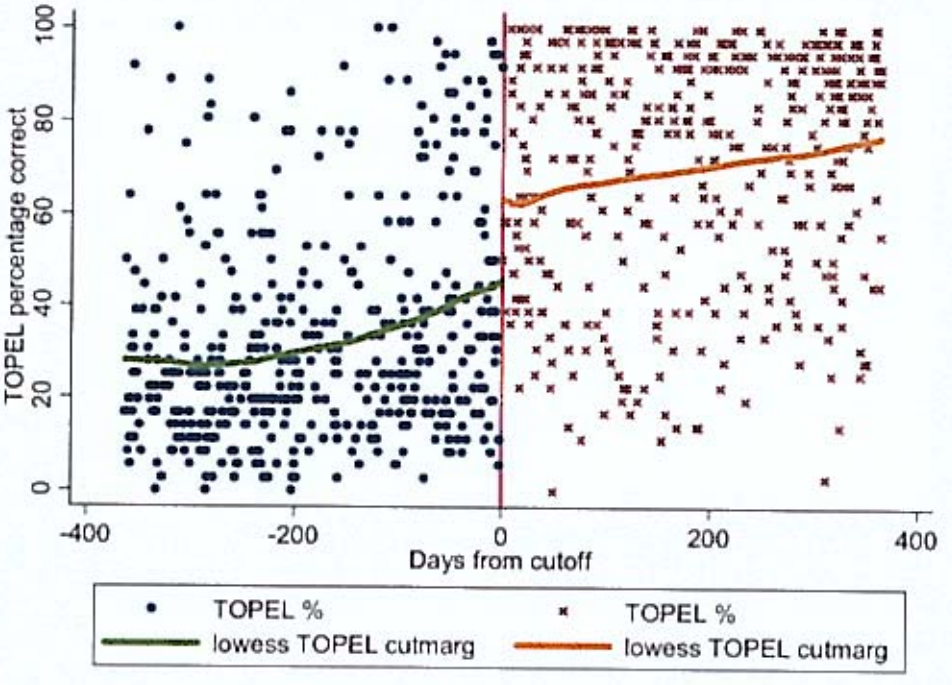


(2) Lowess Plot

Figure A3. Linear and Lowess Plots for TOPEL Print Knowledge Results



(1) Linear Plot



(2) Lowess Plot

The K-3 Plus Program Evaluation Status Report

Presentation to the Legislative Education Study Committee
Representative Rick Miera, Chair
Senator Cynthia Nava, Vice-Chair
November 20, 2008

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Richard LaPan & Peter Winograd
Office of Education Accountability
New Mexico Department of Finance and Administration
Santa Fe, NM

Introduction

- During the 2008 session, the Legislature passed and the Governor signed an appropriation of $200,000 to the Department of Finance and Administration for the Office of Education Accountability to evaluate the kindergarten-three-plus (K-3 Plus) and pre-kindergarten (PreK) programs.
- $100,000 was allocated for the K-3 Plus Program Evaluation.
- A Request For Proposals (RFP) was issued on April 18, 2008, for the K-3 Plus Program Evaluation.
- The contract was awarded on June 13, 2008, to the Early Intervention Research Institute at Utah State University in Logan, UT.
- Linda D. Goetze, Ph.D., Senior Research Scientist, serves as the principal investigator for the evaluation.

K-3 Plus Program Evaluation Calendar

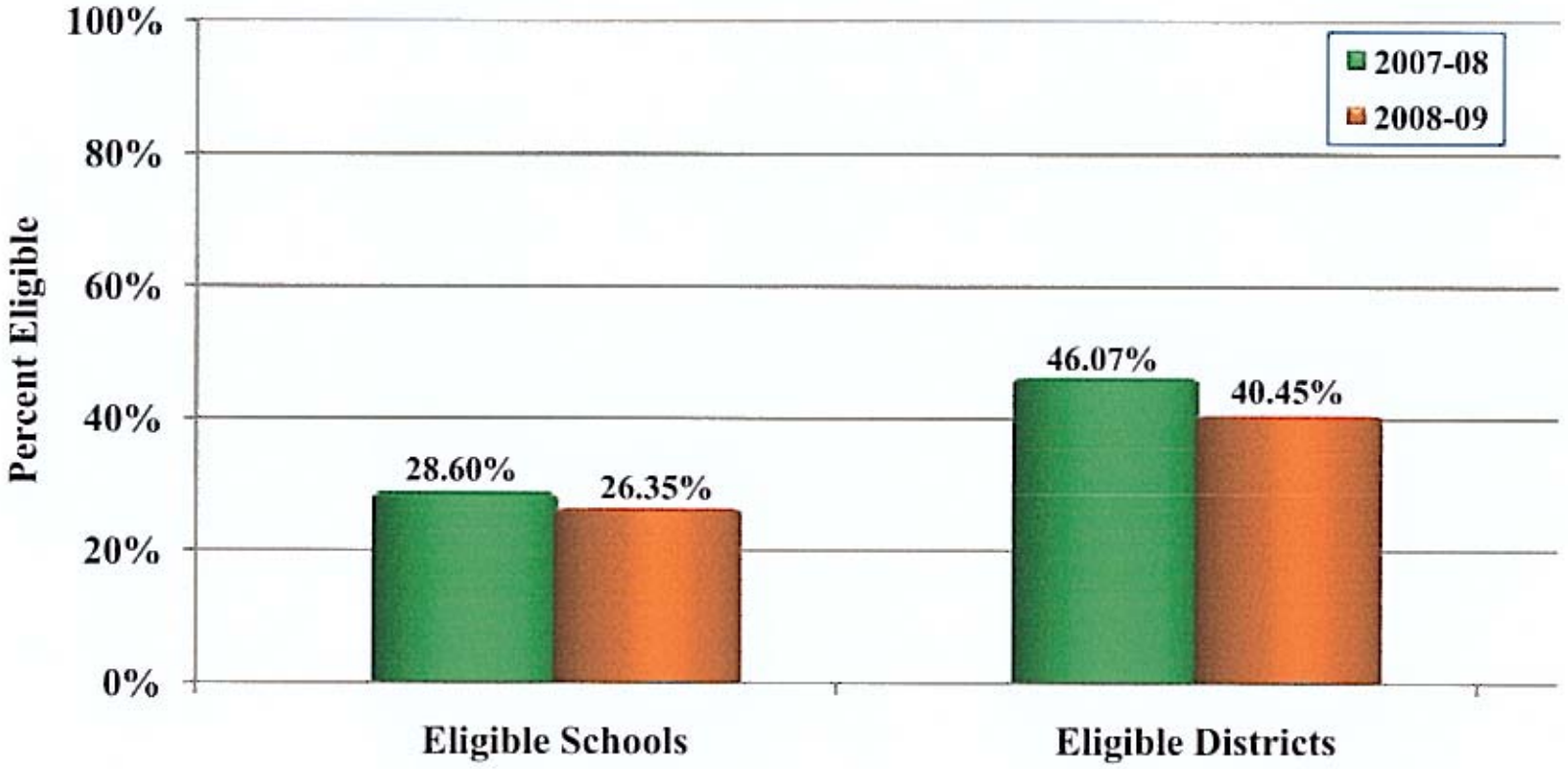
K-3 Plus – Year 1 2007– 2008 School Year	K-3 Plus – Year 2 2008 – 2009 School Year
Program Activity July – August	Program Activity June – August

- Evaluation RFP Issued: April 18, 2008
- Contract Awarded: June 13, 2008
- Evaluation Started: July 1, 2008
- Final Report Due: June 30, 2009

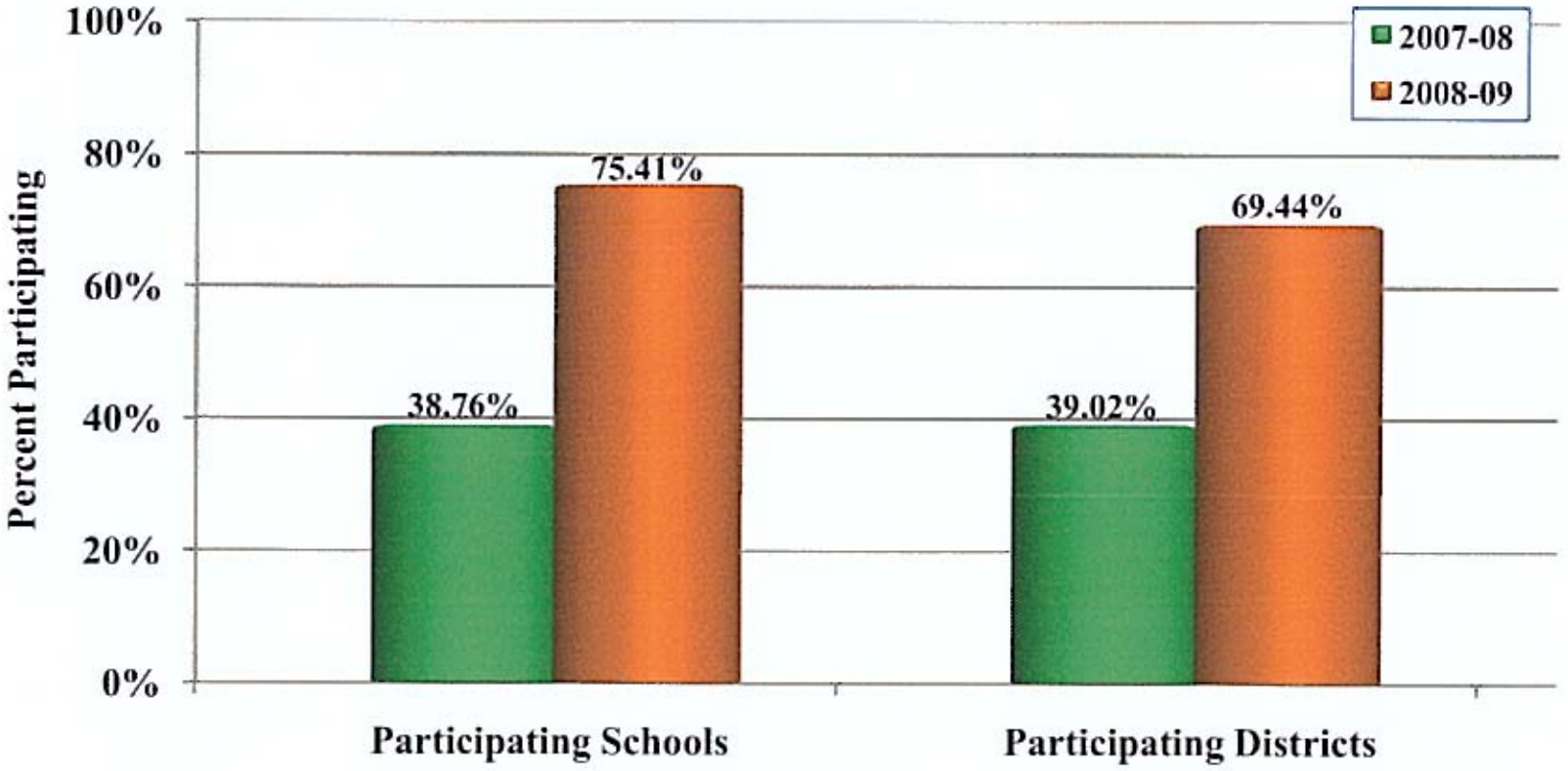
What Do We Know So Far?

Describing K-3 Plus Participation: Districts, Schools, and Students

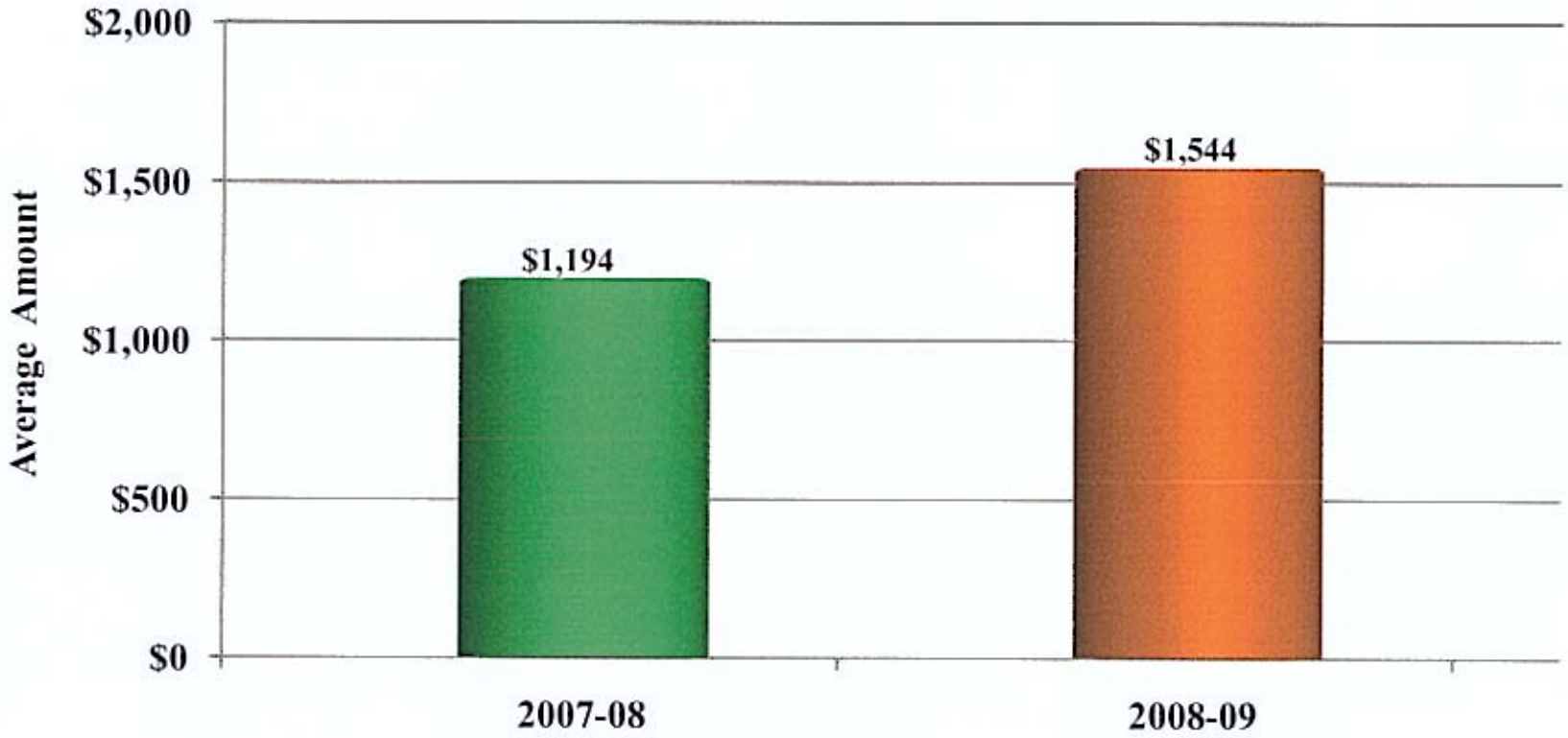
PERCENT OF SCHOOLS AND DISTRICTS THAT ARE ELIGIBLE



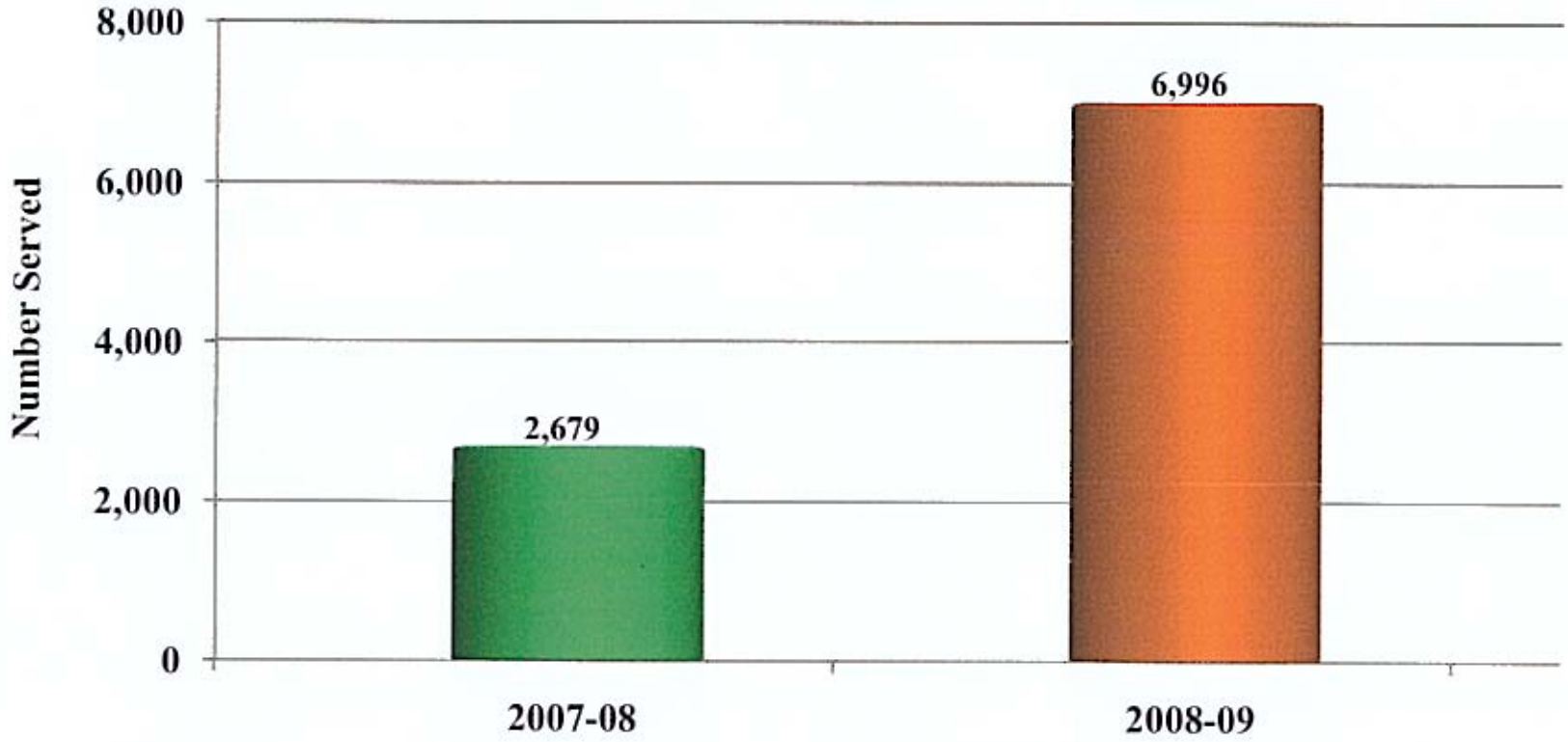
PERCENT OF SCHOOLS AND DISTRICTS THAT ARE ELIGIBLE AND PARTICIPATED



AVERAGE PER STUDENT FUNDING



NUMBER OF K-3 PLUS STUDENTS SERVED



K-3 Plus Participation: Students, Schools, School Districts, and Per Student Expenditure (Preliminary Data)

VARIABLE	2007-2008	2008-2009
Total # K-3 Plus Students served	2,679	6,996
Total # Schools- Elementary in NM*	451	463
Total # Schools Eligible*	129	122
Percentage of Schools in NM that are K-3 Plus eligible*	35.25	50.97
Total # Schools with K-3 Plus	54	92
Percentage of Eligible Schools that Participated*	33.96	38.98
Total # Districts in NM*	89	89
Total # Districts Eligible*	41	36
Percentage of Districts in NM that are K-3 Plus eligible*	46.07	38.20
Total # Districts with K-3 Plus	16	25
Percentage of Eligible Districts that participated*	39.02	73.53
K-3 Plus Legislative Appropriation	$7,163,400	$7,163,400
K-3 Plus Total Funding Awarded	$3,200,000	$10,800,000
K-3 Plus Average per Student Funding	$1,194	$1,544

* *Eligibility determined by prior year free and reduced school lunch.*

K-3 Plus Evaluation: Scope of Work

Measure/Data Source	Research Question(s)	Statewide or Sample
K-3 Plus Proposals	Implementation	Statewide
K-3 Plus Implementation Forms: District and School	Implementation	Sample
Family & Provider Focus Groups	Stakeholder Perceptions	Sample
Community Self-Assessment	Implementation, Stakeholder Perception	Sample
Head Teacher Form	Program Quality	Sample
DIBELS Data	Impact on Student Achievement	Statewide
STARS Data—Teacher	Program Quality	Statewide
STARS Data—Student	Impact on Student Achievement/ Program Quality, NMSBA Data	Statewide

K-3 Plus Evaluation: Scope of Work

Measure/Data Source	Variables Measured
K-3 Plus Proposals	Planned Services and Expenditures, Curriculums, Assessment Types
K-3 Plus Implementation Forms: District and School	Actual Services and Expenditures, Supports, Challenges, Parent Involvement
Family & Provider Focus Groups	K-3 Plus Awareness, Engagement, Receptiveness, Strengths, and Challenges
Community Self-Assessment	Community Demographics and Services and Community Awareness of K-3 Plus
Head Teacher Form	K-3 Plus Teacher Qualifications and Experience, Professional Development
DIBELS Data	Assessment to Improve Child Outcomes
STARS Data—Teacher	Teacher Experience, Degrees, Qualifications, Salaries
STARS Data—Student	Student Grade, Ethnicity, Economic Status, Special Education, NMSBA Results, Grade Repetition

Districts and Schools Selected for In-Depth Study

- **5 districts with geographic, demographic, and program diversity**
  - ✓ **Albuquerque**
  - ✓ **Gadsden**
  - ✓ **Gallup**
  - ✓ **Roswell**
  - ✓ **Taos**
- **21 Schools who have participated for 2 years in K-3 Plus**
  - ✓ **9 Schools in Albuquerque**
    - Duranes Elementary
    - Emerson Elementary
    - Eubank Elementary
    - Hawthorne Elementary
    - Kirtland Elementary
    - La Mesa Elementary
    - Lavaland Elementary
    - Los Padillas Elementary
    - Valle Vista Elementary
  - ✓ **3 Schools in Gadsden**
    - Sunland Park Elementary
    - Mesquite Elementary
    - Chaparral Elementary
  - ✓ **5 Schools in Gallup-McKinley**
    - Chee Dodge Elementary
    - David Skeet Elementary
    - Rocky View Elementary
    - Thoreau Elementary
    - Tohatchi Elementary
  - ✓ **3 Schools in Roswell**
    - East Grand Plains Elementary
    - Pecos Elementary
    - Sunset Elementary
  - ✓ **1 School in Taos**
    - Enos Garcia Elementary

K-3 Plus Program Evaluation Plan of Action and Status Report

STAKEHOLDER PERCEPTIONS

Focus Groups with Classroom Teachers and Educational Assistants in 5 In-Depth Districts:

School District	Focus Group and Site Visit Dates
Taos	October 21st and 22nd
Gallup	November 6th and 7th
Albuquerque	October 9th and December 2nd
Gadsden	November 13th
Roswell	November 18th and 19th

Timeline

- ***In-Depth Measures***
  - **Data collection will be completed in December 2008**
  - **Analyzed and reported in March 2009**
- ***STARS Data***
  - **Data obtained by December 2008**
  - **Analyzed and reported in June 2009**
- ***DIBELS Data***
  - **We are working collaboratively with PED, Wireless Generation and OEA to obtain DIBELS data for 2007-08 and 2008-09.**
- ***Final Report***
  - **All K-3 Plus evaluation data will be analyzed and reported by June 30, 2009.**